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# THE JOURNAL

OF THE

## American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 107, No. 23

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535 North Dearborn Street, Chicago, Ill.

DECEMBER 5, 1936

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*THE JOURNAL of the American Medical Association is published weekly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Subscription price, $7.00 a year. 25c a copy. Canadian $8.50. Foreign $11.00. Entered as second class matter June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879.*

# The Journal of the American Medical Association

**Published Under the Auspices of the Board of Trustees**

VOL. 107, No. 23

COPYRIGHT, 1936, BY AMERICAN MEDICAL ASSOCIATION
CHICAGO, ILLINOIS

DECEMBER 5, 1936

## THE GYNECOLOGIC ASPECT OF HUMAN STERILITY

SAMUEL R. MEAKER, M.D.
BOSTON

The work of Max Huhner on postcoital examination marked the beginning of that interest in the problem of human infertility which has continued without interruption during the past twenty-three years. From the earliest recorded times the childless marriage has been a major problem both for the individual and for society; but only since the beginning of the present century has genuine progress been made toward the correction of this maladjustment.

All recent advances in the diagnosis and treatment of sterility are based on a better understanding of its etiology. These new ideas may be reduced to three fundamental principles.

First, in the great majority of cases of human infertility the cause of that defect is not some single abnormality but rather the summation or totality of several factors. Complete diagnostic studies show that the average childless couple presents 4.79 factors, each of which diminishes to some extent their capacity for conception. It is, of course, always possible that a single abnormal condition may render sterile an individual and consequently any mating into which that individual may enter: this would be true of a blockade in the genital passages, for example, or of any complete impediment to the production of normal gametes. But such factors of absolute sterility, as it may be called, are found in only about 30 per cent of clinical cases. Seventy per cent of couples who apply for the relief of childlessness show no single condition that would account for their difficulty. They do show, without exception, a group of causative factors of which each one lowers their fertility to some extent and of which the sum total depresses that fertility below the threshold of conception.

Second, the multiple factors just discussed are partly genital and partly constitutional. Stock breeders and veterinarians have long recognized the influence that states of constitutional depression exert on the fertility of animals; likewise laboratory workers have found it easily possible to depress fertility by inducing various types of general debility. But only in recent years have physicians taken account of this important fact. In my opinion, the general or constitutional condition is fully as important as the local or genital condition, with relation to the fertility of an individual. It is worth while to cite briefly the evidence on which this opinion is based. To begin with, one cannot neglect the practical experience of the poultry yard and of the stock farm. Again, constitutional depressions in human beings are accompanied by certain objective evidences, such as a lowered metabolic rate, which naturally indicate a faulty grade of endocrine performance. Also, males of the sort under discussion almost invariably show poor spermatogenesis when the semen is mathematically evaluated; and, as supplementary evidence, their semen usually improves when the constitutional fault is corrected. Finally, the total number of cases in which the elimination of a constitutional depression has resulted in the clinical relief of sterility is now sufficiently large to rule out any likelihood of pure coincidence. I should perhaps add that, according to the ideas of my associates, states of constitutional depression include not only endocrine insufficiencies but also various nonendocrine conditions such as chronic intoxication, metabolic disturbances of extrinsic origin, debility and general inferiority.

Third, the several factors present in each case are seldom limited to one partner. My associates and I find that, among the couples who consult us, only about 10 per cent of the husbands and 5 per cent of the wives are free from all objectively demonstrable evidence of infertility. This statement becomes less surprising on reflection than it might at first seem; for the sterility of a mating is commonly determined by a number of factors sufficiently large so that, on mere probability, one would anticipate some division of them between the two partners. Even when an absolute cause is present, there are still in the background other factors, which become operative when the more obvious impediment is removed. I have long ceased to speak of sterility in men or in women; a more accurate concept, in my opinion, is that of the sterile mating, a union between two relatively infertile individuals.

The foregoing remarks on the causation of human sterility make clear the complex nature of the problem and the need for an elaborate diagnostic approach. It goes without saying that the urologist and the gynecologist must make detailed studies of the genital organs; no less important are the services of the internist and the endocrinologist. Complete investigation of every case is necessary in order to obtain the best results; for there could be no worse fallacy than to accept the first discovered abnormality as the sole

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Read before the Section on Urology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

The conclusions reported in this paper are based on an organized group study of sterility, in which I have had the collaboration of Dr. Harold Bowditch, Dr. Charles H. Lawrence, the late Dr. Allan Winter Rowe, and Dr. Samuel N. Vose. Data other than gynecologic are contributed by my associates. The laboratory-endocrinologic work has been done at the Evans Memorial for Clinical Research and Preventive Medicine, a department of the Massachusetts Memorial Hospitals.

and only cause in the case under consideration, on an unjustifiable assumption that no other causative factor is present. In the past, unfortunately, this illogical procedure has been the rule.

I appreciate this opportunity of conferring with the Section on Urology, and I wish to express my admiration of those contributions which it has made in the domain of this discussion. The relative unimportance of male genital abnormalities has been shown and, notably, a technic for the accurate evaluation of semen, a study of which the results represent with admirable precision the several grades of male fertility, has been developed.

Those aspects of the problem which fall within my own field can be briefly summarized. Rareties being excluded, there are four important groups of gynecologic factors of infertility:

The first of these is female genital hypoplasia. Whether such a defect is an end result of overcivilization, I do not know; but the fact remains that today numbers of women possess genital organs scarcely developed beyond that stage of differentiation which would be normal in a 10-year old girl. Hypoplasia is inimical to fertility in several respects, chiefly as regards immaturity of the ovaries, which ovulate imperfectly if at all.

Second, the endocervical mucus is often so thick and tenacious that spermatozoa are unable to penetrate it. Faults of this sort are demonstrated by postcoital examination, a test which should always be performed though it never eliminates the need for study of a condom specimen. Abnormal viscosity of the endocervical secretions may derive from several causes, among which the commonest are poor drainage, due to a pinhole os externum, and endocervical infection. Faulty sex hygiene, with resultant chronic passive congestion, is a factor never to be overlooked.

Third, partial or complete obstruction of the fallopian tubes constitutes an obvious impediment to conception. No doubt gonorrhea plays the major rôle in producing this particularly unfortunate factor. Nevertheless other causes are to be considered: developmental defects, for example, and nonvenereal inflammations.

Fourth, and last, there is the serious matter of deficient oogenesis. Here one gets into exceedingly deep waters. For not only must the ovary be mechanically free to liberate mature egg cells, but the gland must also be able to create that divine spark, that sum total of hormones, which will endow the ovum with adequate vitality. And, on both counts, failures are numerous. Many an ovary is inhibited on purely mechanical grounds, when retention cysts or a thick tunica albuginea interferes with the normal maturation and rupture of follicles. It may also happen that graafian follicles never tend to mature; in such cases the cause is to be sought in some generally depressed state, most often in an absence of that stimulation which should normally come to the ovary from the anterior lobe of the pituitary.

The gynecologic investigation of a sterile mating involves a long series of routine procedures: history and abdominopelvic examination, with particular reference to certain details that are not of great importance in ordinary gynecologic cases: measurement of the uterine index, tests of tubal patency, study of the endocervical secretions, and postcoital examination. Most of these tests are generally familiar, and it is unnecessary to discuss them in detail. There remain two diagnostic items which deserve a special word of comment.

Since the factor of hypoplasia is exceedingly important in every case of deficient oogenesis, the gynecologist naturally desires to evaluate defects of this sort with the utmost accuracy. For the purpose of quantitative estimation, my clinic has used for ten years a measurement which we call the uterine index. This is an expression of the ratio between the length of the uterine body and the length of the cervix; the relation is 0.25 in infantile cases and 0.75 or more in cases in which normal development has been attained. Figures thus obtained are far more significant than a casual notation of such stigmas as an elongated and anteflexed cervix.

The most obscure detail in every case of sterility is the question of effective ovulation. No method of examination has ever been sufficient to determine whether or not the ovaries actually liberate mature and normal eggs. Menstruation obviously proves nothing in this respect; some women flow regularly without complete follicular activity in their ovaries, while others conceive even during times of amenorrhea. A great deal of interesting work has recently appeared on the problem of so-called anovular bleeding; that is to say, of a uterine flow not dependent on the rupture of a graafian follicle with consequent formation of a normal corpus luteum. I believe that in all such discussions there is a certain tendency to separate arbitrarily, and perhaps wrongly, the idea of mature and complete follicular activity, and the concept of a follicular cycle which, even though abortive, may still produce a certain number of lutein cells. That is why I do not accept without some question the conclusions based on endometrial biopsies, however well they appear to indicate successive events in the physiologic program of the ovary.

The way of treatment is clearly indicated by a complete diagnostic study. In general, one should aim to correct all the factors demonstrated as inimical to fertility. A multiple therapeutic approach gives results far better than those obtained in older days, when treatment was limited to one or two items. It does not follow, however, that complete treatment should be undertaken from the start, since good judgment often dictates the wisdom of eliminating certain factors before others are attacked. Notably, it is essential to assure an adequate grade of male fertility before subjecting a wife to any therapeutic measures directed primarily against sterility.

In the gynecologic field, methods of treatment are fairly well standardized. Endocervical infections may be cured with the cautery, and, if a pinhole os prevents free drainage of the secretions, a small posterior median discission can be done. Insufflation of gas and injection of iodized oil relieve many partial tubal obstructions; in fimbriated-end occlusions salpingostomy is a valuable procedure, provided this is invariably accompanied by postoperative measures that will maintain the established patency. Deficient oogenesis calls for the services of the endocrinologist or of the internist more often than for those of the gynecologist; nevertheless I am of the opinion that conservative operations on the ovaries, notably the resection of retention cysts, are of great utility for the purpose of restoring normal follicular function. The factor of hypoplasia remains exceedingly difficult to manage in the adult patient, in whom all developmental urge or growth impulse has been lost. But there exists in this connection a brilliant opportunty to practice preventive gynecology, for it appears that most of such developmental arrests can

be foreseen and forestalled by proper attention to the menstrual behavior and to the general health of the adolescent girl. I would say that the entire project of preventing human infertility is more important and more hopeful than everything that can be accomplished at present in the way of curing established cases.

475 Commonwealth Avenue.

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## METHODS IN SPERM ANALYSES AND EVALUATION OF THERAPEUTIC PROCEDURES

ROBERT S. HOTCHKISS, M.D.
NEW YORK

The problem of human infertility has opened a new realm for thought and ingenuity, for it entails the unique implication of a pure creative endeavor within the practice of medicine. The proverbial mission of the physician has long been that of alleviating pain, combating and controlling disease and observing and assisting the physiologic processes of the body in health and in illness. The ultimate objective of the correction of disturbed fertility is the production of a new individual from a source that has hitherto been barren. Such a commendable motive deserves from the profession the serious deliberation it requires.

From Biblical times until the present century the wife has borne the burden of blame for failure to produce offspring, for until twenty years ago no serious studies of male fertility had been undertaken. It is now generally agreed that the husband bears the chief or partial responsibility in approximately one fourth of the involuntary barren marriages and accordingly his examination is now regarded to be as important as that of his wife.

This past indifference to the male was undoubtedly due to numerous influences and misconceptions. The erroneous belief that potency was ample evidence of fertility has happily been dispelled. Fear of offending the masculine ego by questioning his fertility is no longer a formidable hazard, yet certain men are still apprehensive that a previous venereal disease might be disclosed as a result of such an examination. It is likely, however, that the real explanation for the negligence toward the male was due to the lack of time and inclination on the part of the physician to consummate a complete investigation.

The purpose of any study of infertility is not only to detect absolute sterility but rather to arrive at an estimation of the relative fertility of each partner, each to be considered separately and together as a marital unit. The power of reproduction depends on the sum total of the details of the germ plasm, the physical status of the subjects and their ability to have coitus. If the combination of these factors is below "the threshold level for fertility," no issue will result from the marriage even though each constituent may possess varying positive degrees of fecundity. There is therefore a difference in the grade of fertility of each marriage as well as of the individual. This is demonstrated in instances in which one person proves fruitful to one mate yet barren to another. It accordingly becomes the goal of the physician to detect and possibly overcome the causes of absolute sterility or to enhance the existing fertility to a level at which conception may occur. The latter may involve the correction of a number of faults in one or, more usually, in both partners.

The appraisal of the semen constitutes the chief and final index of male fertility, and one must be able to recognize relative degrees of seminal deficiency and learn to correlate these with the clinical data to determine whether the husband is the chief or contributing factor to the barren marriage. It is difficult to construct an intelligent opinion if the examiner is deprived of an examination of the male patient or is without a report of the status of the female. Such is the case, however, if the semen alone is delivered for analysis.

If it is borne in mind that spermatozoa are able to exhibit motility longer in low temperatures than at body heat and that the ingredients of the average condom are hostile to their life, much error and confusion will be avoided by proper instructions relative to the method of collecting the semen for analysis.

Following a period of three days' abstinence, the ejaculation is collected directly into a wide-mouth glass container and allowed to remain at room temperature or lower until delivered, within one or two hours, to the examiner. An active specimen will exhibit motility for thirty hours or longer under these conditions.

The spermatozoa in the semen may be compared to the populace of a large city, for in each there are young and immature individuals, aggressive and sluggish types, malformed members, and the old and dead. It is probable that the spermatozoa derive the nutrition for their activity from the abundance of dextrose that is found in the fresh specimen in from three to six times that present in an equal amount of blood.

A routine semen analysis should include the following details:

1. The average volume of the ejaculate is from 3 to 4 cc. Variations from one or two drops to 10 cc. are encountered. Specimens of less than 0.5 cc. in amount fail to produce an adequate seminal pool, which ordinarily provides a medium for the survival and protection of the sensitive sperm.

2. The appearance and viscosity of the fresh ejaculate is entirely different from that one-half hour old. Self liquefaction is then completed, much to the benefit of motility of the sperm. If the eventual motility is of a good grade it is likely that variations in viscosity have little or no clinical significance.

3. The $p_H$ of a seminal specimen usually falls within the range of from 7.7 to 8.5. If no motility is found it is of particular importance to obtain a $p_H$ determination, for in rare instances a shift to a low reading of 6.0 and 6.2 has been found to be associated with necrospermia.

4. It is extremely difficult to give a word picture of the description of the motility of the spermatozoa. The type of activity, the number crossing a microscopic field and the percentage of inactive cells are all details of interest. Interval examinations are made to determine the viability of the sperm, which is usually about twenty-four hours at room temperature.

5. The number of spermatozoa is determined by the use of the usual equipment for counting blood cells. A sodium bicarbonate-phenol solution is used as the diluent; it destroys motility to permit an accurate estimation of the cells present in each cubic centimeter and in the total ejaculate. The average fertile male will produce from 100,000,000 to 150,000,000 sperma-

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Read before the Section on Urology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

tozoa per cubic centimeter or from 400,000,000 to 500,000,000 in the total ejaculate. One group of eminent authorities state that in their experience pregnancy does not occur if the cell count is below 60,000,000 per cubic centimeter. I have on record a few exceptions to this rule and believe the more reliable and consistent cell counts have been on the basis of cells present in the total volume of the ejaculate rather than in units of cubic centimeters. The bulk of the semen undoubtedly originates in the prostate and seminal vesicles, and variations in the amounts of these secretions will accordingly dilute or concentrate the specimen. In the former instances an apparent deficiency may be inferred if the cell count is expressed in cubic centimeters, whereas the number of sperm in the total ejaculate may prove to be normal. Here, as elsewhere, dogmatic rules are dangerous, and it is unlikely that any figure can be decided on as a fixed minimum. When fewer sperm are found, the chance of fertilization is mathematically and proportionately reduced until a theoretical point is reached at which impregnation is most unlikely. A simile may be found by comparison with the laws of chance as it affects a hunter shooting at a difficult target with a shotgun: his chances of hitting the object are enormously reduced if the shell is loaded with ten shot rather than with 125 of the same size and weight.

6. The examiner must be familiar with the variations in the morphology of the spermatozoa just as the hematologist is conversant with blood cytology. A stained smear is prepared and the percentage of atypical cells is established by count. If some of the more complicated stains are not available, the Gram stain gives a fair visualization of the cell structure after proper fixation. Moench[1] has evidence that leads him to believe that, if more than 20 per cent of the cells have abnormal form, sterility or miscarriage will result. In an incomplete but rather large group of cases of proved fertility now under study I have yet to find an instance of a normal pregnancy attributable to a seminal specimen with excessively large numbers of abnormal sperm, yet this condition is not infrequently encountered in cases of disturbed fertility. Veterinarians are familiar with this breeding defect in male animals and have means of offering proof of male faults that cannot be obtained in human studies.

The test of time leaves the future to determine the actual value of this important theory, as information is compiled to substantiate or refute the current principles of sperm morphology.

The following cases are herewith presented to illustrate principles in the method of diagnosis and management of certain defective husbands. All examinations, treatments and inseminations of the females were done by gynecologists in private practice or in the gynecology department of this hospital. Abstracts of the records of both husband and wife are included for the sake of completeness and clarity.

## REPORT OF CASES

CASE 1.—*Husband.*—The chief complaint was that there was no ejaculate, and the marriage was barren.

For the duration of his two and one-half years of married life the patient had never produced an ejaculate, although he obtained erections and had coitus once or twice each week. He appeared eight years younger than his actual age of 26 years. There was no beard, and the body hair was absent except for the pubic region, where it had a typical feminine distribution. The external genitalia were of the size and development of a 10 year old boy and the prostate was palpated with difficulty. Massage failed to produce any secretion from the gland.

Roentgenograms of the skull and routine laboratory tests were negative except for the sugar tolerance tests, which demonstrated a small elevation and rapid fall to the blood fasting level. Repeated efforts to produce a small amount of semen were without success.

*Wife.*—The wife was essentially normal (gynecologic report).

*Treatment.*—The husband received 200 units of the gonadotropic factor from pregnancy urine, daily for five weeks. At the end of that time his ejaculate consisted of one drop of semen containing from six to eight normal spermatozoa per high power field. For the subsequent thirteen weeks gonadotropic substance (200 units) intramuscularly was alternated daily with 20 units of solution of anterior pituitary. At the end of eighteen weeks about two drops of semen could be produced, containing from 100 to 200 spermatozoa per high power field, and a definite increase in the libido was reported. This type of therapy was continued with the addition of weekly prostatic massage and in eight months from the beginning of the treatment the ejaculate measured 0.2 cc. and possessed numerous highly motile spermatozoa. At the end of fourteen months the following semen analysis was made: volume 0.75 cc., viscosity and turbidity above normal, motility excellent, vitality twenty hours; count per cubic centimeter 76,000,000, total for ejaculate 57,000,000.

Morphology: A stained specimen revealed normal cell formation.

*Result.*—The wife became pregnant seventeen months after the inception of therapy and was delivered of a normal female child.

In my experience this favorable result has been decidedly unusual. In a number of similar cases the same treatment was administered without results. It would appear, however, that long periods of endocrine therapy may be necessary if results are to be anticipated. Predictions are hazardous and the actual mechanism of the gonadotropic action of these products still remains purely theoretical. No change in the patient's appearance or body structure was apparent at the end of the treatment.

CASE 2.—*Husband.*—The husband, aged 35, was apparently healthy and well developed. His sexual ability and habits had been normal during the five years of married life, yet there had been no signs of pregnancy.

The entire physical examination failed to disclose anything of importance except a boggy prostate gland containing a few pus cells.

The laboratory data were essentially negative but the semen analysis disclosed the following: volume 1.75 cc., $p_H$ 8.0; motility: one hour poor grade (from 10 to 15 cells motile per high power field), eight hours sluggish, ten hours very slight motility; cell count per cubic centimeter 18,000,000, total for ejaculate 31,200,000 (low); morphology: large numbers of spermatocytes and immature forms; 28 per cent of adult cells were of abnormal morphology. A diagnosis of a defective seminal specimen was made on the basis of poor motility, low count and abnormal cell structure.

*Wife.*—A thorough examination by a gynecologist revealed nothing abnormal except for a slightly hypoplastic cervix not sufficient to explain the infertility.

*Treatment and Course.*—The husband was treated as in the previous case, with the inclusion of thyroid substance by mouth and a high vitamin diet. At the end of twelve months he had gained 12 pounds (5.4 Kg.), yet no material change in the semen was noted except for increased motility and vitality.

At the end of fifteen months the estrus period was studied by the vaginal smear method (Papanicolaou-Shorr) and five artificial inseminations were attempted with the husband's semen at various times in the probable ovulatory phase during

1. Moench, G. L.: Sperm Morphology and Biometrics, M. Times & Long Island M. J. **62**: 33-35 (Feb.) 1934; Sperm Morphology and Microdissection, Am. J. Obst. & Gynec. **18**: 53-56 (July) 1929; Sperm Morphology and Biometrics, Am. J. Obst. & Gynec. **25**: 410-413 (March) 1933; Evaluation of Motility, J. A. M. A. **94**: 478-480 (Feb. 15) 1930; Technique of Study of Cytology, Am. J. Obst. & Gynec. **19**: 530-538 (April) 1930. Moench, G. L., and Holt, N.: Number of Spermatozoa and Fertility, Urol. & Cutan. Rev. **33**: 814 (Dec.) 1929; Sperm Morphology, Am. J. Obst. & Gynec. **22**: 199-210 (Aug.) 1931.

the ensuing five months. No results followed. At the request of both husband and wife, foreign semen (an excellent specimen) was used for the insemination. Pregnancy occurred after the third attempt. A normal birth duly followed.

This case is presented to illustrate the necessity of a detailed semen analysis to detect male deficiency. Although numerous spermatozoa were produced, the husband was "sterile" to his wife. Artificial inseminations with defective specimens do not correct the cause of the barrenness and are most apt to be useless. Therapeutic measures failed in this instance to alter the character of the semen.

CASE 3.—*Husband.*—The husband, aged 35, was deformed and somewhat obese, with an arthrodesis of the right hip due to tuberculosis of the joint in childhood. For the nine years of married life there had been no signs of pregnancy. The semen had been analyzed on several occasions and reported to be satisfactory, but no physical examinations had been done for the problem of infertility.

On examination the meatus was found located proximal to the glans, opening on the ventral surface of the shaft of the penis. A diagnosis of hypospadias was made. The other examinations revealed no unusual disorders and the semen was found to be satisfactory, as evidenced by the accompanying report: volume 3.75 cc., appearance and viscosity normal, $p_H$ 8.1; motility: two hours excellent, six hours very good, twelve hours good, twenty-four hours slight; morphology, 93 per cent normal oval type; count per cubic centimeter 128,000,000, total for specimen 416,000,000.

*Wife.*—Gynecologic examination disclosed a myoma of the uterus. This was removed and six weeks thereafter the pelvic organs were normal to palpation and roentgenologic examination.

*Course.*—No pregnancy occurred during the following seven months from the date of full recovery from the operation. The ovulation period was studied by the vaginal smear method (Papanicolaou-Shorr), and artificial inseminations were done with the husband's semen. Pregnancy occurred after the third month of these procedures.

The husband believed that he was totally without fault by virtue of the favorable semen analysis performed two years before this study was begun. It is possible and probable that the hypospadias interfered with the proper deposition of semen. This case of "marital sterility" is presented to demonstrate in particular a combination of faults in the two partners and to emphasize the importance of complete investigation of both husband and wife.

CASE 4.—*Husband.*—The husband had contracted gonorrhea fifteen years before and suffered from a bilateral epididymitis. All traces of this infection had disappeared but his seven years of married life had been without offspring. At the age of 37 he was in the best of health and, with the exception of slight induration of both epididymides, was found to be normal.

Repeated examinations of his ejaculate showed the complete absence of spermatozoa, and a diagnosis of bilateral blockage of the epididymides was made.

*Wife.*—The wife was found to be entirely without fault and no cause for the infertility could be assigned to her.

*Treatment.*—A bilateral vaso-epididymal anastomosis was done and many spermatozoa were recovered from aspiration of the globus major of each epididymis.

During the six weeks postoperative period the ejaculate contained a few sluggish spermatozoa, but these disappeared when subsequent specimens were observed until they were again present in the specimen at the end of five months. At that time the following specimen was obtained: volume 4.5 cc., $p_H$ 8.0, viscosity normal; motility: one hour excellent, six hours very good, twelve hours good, twenty-four hours, from 10 to 15 cells motile per high power field; count per cubic centimeter 101,000,000, total for ejaculate 452,000,000; morphology: a stained slide demonstrated normal cell structures.

*Course.*—The wife became pregnant eight and one-half months after the date of operation.

This presents again the fact that occlusion of the vas does not destroy the spermatogenesis of the affected testicle. The results of such an operation may not be apparent for several months and repeated studies of the semen are advisable even if spermatozoa may not appear for a long period after the anastomosis has been attempted.

SUMMARY

A competent investigation of marital infertility must include a careful examination of both partners. The relative fertility of both husband and wife must be established to determine the grade of fertility of the marriage. Wide variations exist in the fertility of men as determined by semen analyses.

The semen constitutes the chief index of male fertility. The proper evaluation of its fertilizing power is dependent on the complete analysis of the various factors and constituents of the specimen.

Male defects may be eradicated or improved in certain instances. Caution is advisable in anticipating or predicting results from the administration of endocrine products. These may be striking in some instances and yet entirely lacking in other apparently similar cases.[2]

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## THE OPERATIVE TREATMENT OF STERILITY IN THE MALE

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The most frequent cause of sterility in the male is inflammatory occlusion of the epididymis or vas deferens. It is solely to this cause and its treatment that I shall limit my discussion in the present paper.

Atrophy of the testicle very rarely occurs in epididymitis, especially in the type associated with gonorrhea. I say this from my experience in the operative treatment of gonorrheal epididymitis, as in more than 300 cases I have never found evidence of involvement of the testicle itself, the epididymis and tunica vaginalis seeming to bear the brunt of this infection.

Traumatic epididymitis rarely leads to sterility. I have recently had a patient who had an injury ten years ago, apparently not very severe, to both testes. He was examined by a doctor in another city. In the examination, eight months before I saw the patient, a needle was inserted into the epididymis, and it is said that live spermatozoa were obtained. At the operation the globus major on each side was found to be very dark and on incision appeared as an organized blood clot. On one side there was a very small abscess, but no spermatozoa were found, although the vas was patulous. It was useless to make an anastomosis, and therefore none was made.

From my experience in this case I should rather deprecate the exploring of the epididymis with a needle. In none of my successful cases was this done.

In bilateral gonorrheal epididymitis the healing process leads to the formation of scar tissue, which causes an occlusion of the efferent ducts of the epididymis,

2. Special acknowledgment is made to Dr. Ephraim Shorr, Department of Medicine, New York Hospital, for his kindness in the care and management of those patients, whom he examined and treated in his department of endocrinology.

Read before the Section on Urology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

and this prevents the egress of the normal spermatozoa, which are formed by the unaffected testes. The globus minor is the portion of the epididymis most involved. It is in this very portion that occlusion has the most dangerous results, as there is here but one efferent duct, while in the globus major the efferent ducts are numerous and the obstruction of one or two would still leave open other channels.

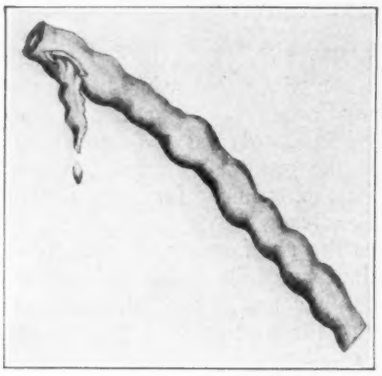

Fig. 1.—The beading of the cord which is often present when the lumen is occluded. On incision a thick yellow material escapes.

It was because of the known patulence of the globus major following gonorrheal epididymitis, when the globus minor and the vas deferens in this region became occluded, that the anastomosis of the vas deferens and the globus major was made by Dr. Edward Martin of Philadelphia, who was a pioneer in this field. The endeavor to overcome the occlusion by such an operation offers the only chance of recovery.

I have never had a successful case following operation for sterility in which the patient has not had a history of bilateral epididymitis. There are two conditions that must be present for a successful result in sterility of this type: first, the vas must be patulous

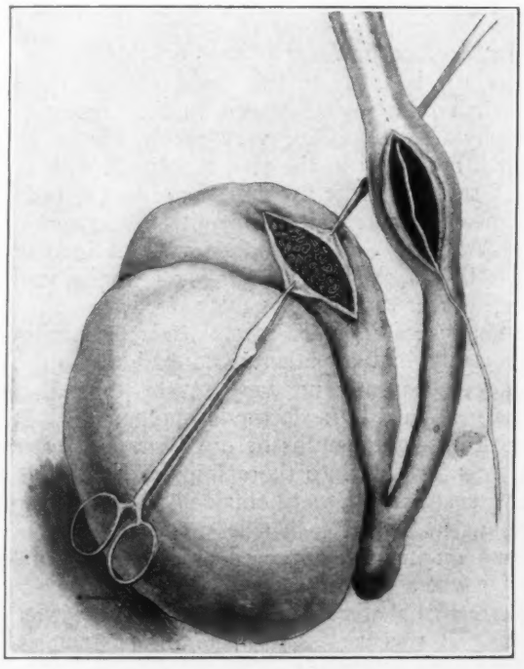

Fig. 2.—The vas opened and silkworm gut passed up the lumen. Incision into the globus major and the tubules cut across.

above the point of the anastomosis; second, the globus major, or the upper portion of the body of the epididymis, must contain live spermatozoa. If these conditions are not present it is futile to expect a cure from the operation.

I have been able by careful palpation of the vas, on noting a beaded condition, to make a prognosis of occlusion preoperatively in a number of cases. I have at times failed to make this preoperative diagnosis in some cases in which occlusion was present. The globus major in a favorable case is, as a rule, easily palpable and has a rather full feeling on palpation. If the globus major is not palpable it may be entirely obliterated by fibrous tissue, with the ducts occluded and no spermatozoa discoverable.

As stated in previous papers, I have had no successful cases except those in which silver wire was used as a suture. I had one case in which I used very fine silk at the first operation, but it resulted in a failure. This patient was subsequently reoperated on, and the silver wire was used, with a cure resulting. I cannot explain this circumstance, but it is my impression that there is less tissue reaction from silver wire than from any other type of suture. I feel that I have proved this conclusion by experimentation on animals.

In some of my patients on whom I have reoperated after an initial failure, the silver wire sutures had the

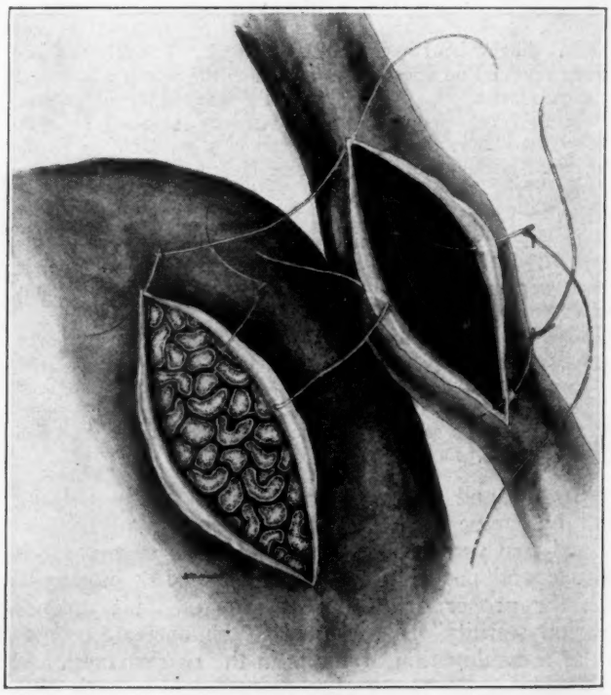

Fig. 3.—The placing of the fine silver wire sutures to complete the anastomosis.

same appearance as at the time they were inserted, twelve or more months before, with very slight formation of fibrous tissue.

I shall only briefly mention the steps of the operation, as these have been reported so many times that I think repetition is unnecessary. It is an interesting fact that I have not had a single case of impotence in any of the patients who were sterile.

I have had four atypical cases, three in which the vas was occluded on the side in which the epididymis had live spermatozoa, whereas on the opposite side no spermatozoa were found though the vas was patulous. A crossed anastomosis was done; that is, the patulous vas was brought through the septum of the scrotum and anastomosed to the epididymis that contained the live spermatozoa. Unfortunately these cases failed of cure. The fourth was more successful. A doctor from North Carolina presented himself, and at the time of operation I found an occluded vas on the left side and a scarred globus major with no spermatozoa. On the right side the globus major was replaced by a moderate-

sized spermatocele that contained actively motile spermatozoa. An anastomosis was made between the vas and the spermatocele. In six weeks this patient had actively motile spermatozoa, and his wife became pregnant within two months and was subsequently delivered of a normal child.

Every urologist knows that, when operating on a spermatocele, he is liable to a recurrence unless he removes every part of the sac (which means the removal of the small duct that leads into the cyst). I assume that the same condition obtains in individuals in whom a cure is procured; namely, that a sinus is formed between the incised vas and one or more tubules in the epididymis that act in the same way as the duct that leads to a spermatocele.

A failure at one time, if live spermatozoa are present and if the vas is patulous, is not a contraindication to a second operation. In some of my most successful results I have had a failure the first time, with a favor-

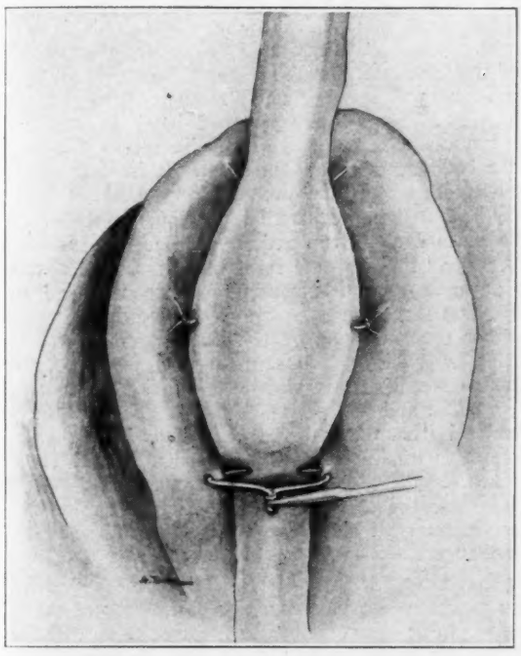

Fig. 4.—The anastomosis completed. The silver wire sutures are drawn up and twisted.

able outcome at the second operation. The time of the appearance of the spermatozoa varies. I have had individuals who have produced actively motile spermatozoa one month after operation and others varying from one month to nearly a year. I do not reoperate under one year, as I have had successes that did not manifest themselves until eight or ten months after operation. In one case the first evidence of a cure that the patient noted was his wife's pregnancy. He was in an unhappy frame of mind until we found that he had thousands of spermatozoa.

Before operation, repeated examinations for spermatozoa have been made either by myself or by the surgeon referring the patient. Some patients have been sent to me as sterile who were found not to be so. It is most important to examine an ejaculated specimen of semen and not rely on that obtained by massage of the prostate and seminal vesicles.

It is important to control all bleeding either by torsion or by pressure before the anastomosis is made. I have always done a bilateral operation, being careful not to make the incision in the vas too high up, thus giving a double chance for a cure and, in case of failure the first time, allowing for a subsequent operation.

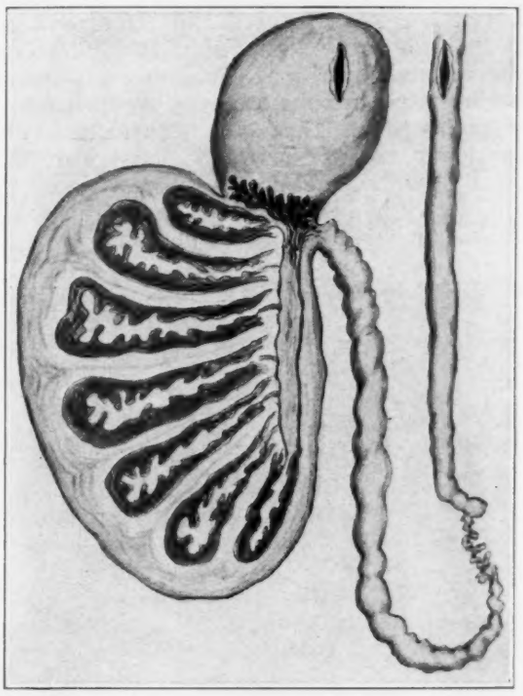

Fig. 5.—First step in anastomosing the vas deferens with a spermatocele.

In the sixty-five cases here reported there were seventy-seven operations. Twelve patients were reoperated on because of initial failure. Of these twelve, seven were cured by the second operation.

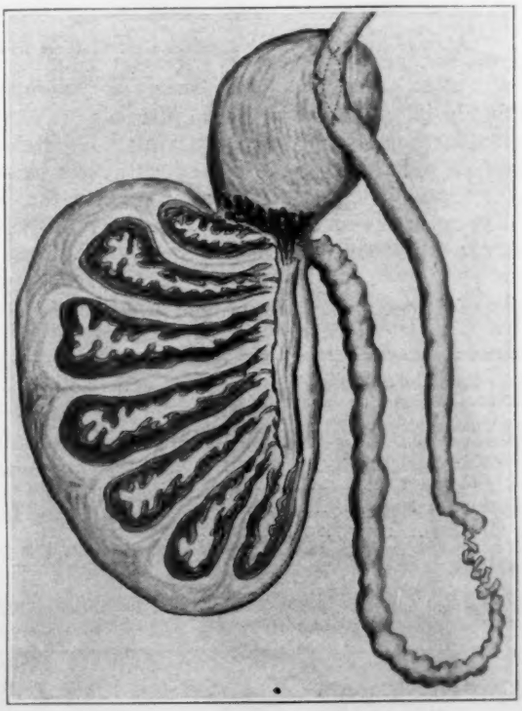

Fig. 6.—Completed operation.

Nearly all my operations have been done by lateral anastomosis except the few rather atypical ones already mentioned. Sometimes one finds occlusion of the vas at the first incision, and by going farther up the vas one is able to get above this obstruction. Unless great

care is exercised to cut only into the lumen of the vas, which is recognizable by the yellowish tinge of its lining, there is likelihood of the operator carrying the incision through the entire diameter of the tube. It is important not to strip the vas deferens too close. I place the first suture at the distal end of the incision in the vas, taking a good heavy bite, as this is the anchoring suture for the operation and the obstruction is below this point. The suture is then anchored firmly in the lower end of the elliptic incision of the epididymis. Two lateral sutures are then placed to take a fairly heavy bite in the epididymis and include some of the cut tubules. If only the fibrous covering of the

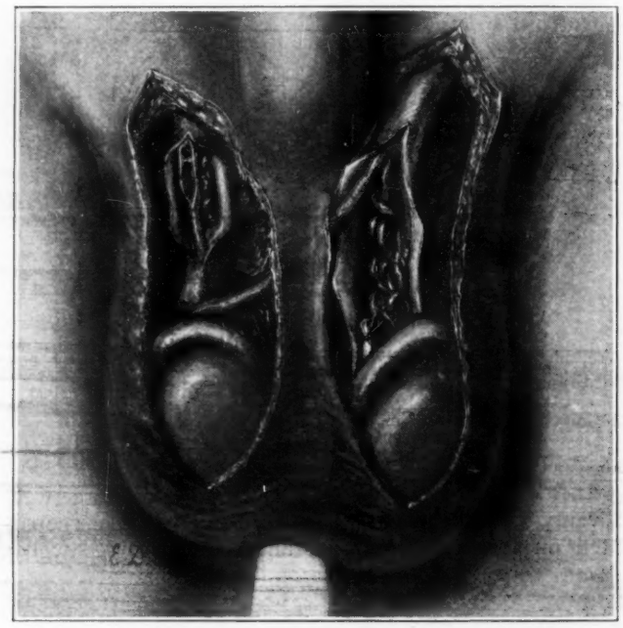

Fig. 7.—Anastomosis of the vas through the septum of the scrotum to the opposite side.

epididymis is taken up in the suture, the cut tubules drop back when the anastomosis is made. The suture is then passed through the cut edges of the vas, just enough tissue being taken to approximate the edges. The last suture is passed in the same way through the upper end of the incision in the epididymis. It is then

*Results in Operative Treatment of Sterility in the Male: Sixty-Five Cases*

| | |
|---|---|
| Number of patients operated on<br>Repeated examination showed no spermatozoa | 65 |
| Cases impossible of cure<br>Due to occlusion of vas deferens or absence of spermatozoa in the epididymis | 30 |
| Too early to report result | 1 |
| One result unobtainable.....Total | 2 |
| Favorable cases<br>Patulous vas deferens and motile spermatozoa found in the epididymis | 33 |
| Cures (63.6 per cent)<br>All presented numerous motile spermatozoa; 16 of the 21 begat one to six children, although one was a miscarriage | 21 |

passed through the vas, at the upper angle of the incision, being carefully placed so as not to occlude the lumen. I test this out with a tear duct probe. The anastomosis is then complete. The instruments that I use are iridectomy knives, scissors and artery forceps such as those commonly used in operations on the eye.

The operation, while tedious, is not dangerous to life. I have always used general anesthesia. I have felt that in order to avoid the formation of scar tissue no local infiltration should be used. The operation cannot compromise the function of an organ that has already proved functionless. In no class of cures will the surgeon be rewarded by his patients with a greater warmth of gratitude.

1835 Eye Street, N.W.

## ABSTRACT OF DISCUSSION

### ON PAPERS OF DRS. MEAKER, HOTCHKISS AND HAGNER

DR. VICTOR D. LESPINASSE, Chicago: Dr. Meaker pointed out that an examination as to the etiologic diagnosis of sterility includes a complete physical examination: the state of body and the state of mind. With regard to pathologic secretions it is rather curious that pus in prostatovesicular infections sometimes is deadly to the life of the sperm and at times is not. The Huhner test, as Dr. Meaker brought out, is a valuable procedure; it determines the reaction of the spermatozoa to their normal, natural environment. A point of considerable importance in the male is the size of the prostate. If a young man, 25, 30, 35, has a soft, succulent prostate, I feel that he is a pretty good man from a sex standpoint. When semen is first ejaculated it is quite thick, quite viscid if it is a normal specimen. Some specimens never coagulate; they are thin and watery from the start and in my experience are poor specimens. The evaluation of sperm is not permanent; it is not like blood groups. The sperm is a very good index as to the general bodily condition. If one has a good live sperm it is very likely that the bodily condition is excellent. It is surprising what a normal spermatozoon can do. It can travel all around the country and still impregnate. I did some experimental work once wherein I rigged up a doe's reproductive system so that the sperm had to go up the right side, across the abdomen and come down into the left uterus to impregnate, and they did. Granted that there are no sperm in the semen, the condition is due either to obstruction or to lack of production. I regard testicular or epididymal puncture a very poor procedure. In obstructive sterility it is always a question as to where the obstruction is, and one presumes that it is where the palpable infiltration is; but the real obstruction may be in the vas. The infiltration is usually greatest in amount, as Dr. Hagner has mentioned, in the globus minor, but one should feel the vas. In these cases of obstruction the testicular tension is a little higher than normal and there is oftentimes a small hydrocele with adhesions.

DR. LAWRENCE R. WHARTON, Baltimore: A great many women conceive who have a minor obstruction of the fallopian tube that can be overcome by the pressure of gas, by the Rubin test. On the other hand, I think Dr. Meaker will probably agree with me that, if the lumen of the tube has been obliterated and the walls have been sealed by inflammation, the situation is bad. Endocrinology is one of the most difficult problems to measure, because in this domain there is no uniformly accepted standard, no yardstick by which the patient can be measured. Young women may have metabolic disturbances which are temporary and which do not interfere with subsequent normal conception. Of course, very few are completely normal, and there are many women who have slight endocrine disturbances, who are slightly over weight, who have a slightly changed metabolic rate, and they are normally fertile. It is difficult to measure these cases by a standard rule. In the last ten years the progress in this domain has been immense, and in the same measure in which progress has been made, I think further progress will be made by the careful work of men in laboratories, in clinics and in offices. There is one feature of sterility in women which has not received much attention. I refer to phenomena concerning ovulation. Ovulation is just as important as spermatogenesis. We see the sperm cells, we know whether they are healthy, we know whether they are being formed in normal proportions, but we don't see the ova, we don't know whether they are healthy, we don't know whether in some cases they are even being formed or not. This problem has been studied rather actively in the last year. There are certain definite features that accompany ovulation in many women. These women have a slight mucoid discharge at that time; many women have a slight micro-

scopic trace of blood in the cervical secretion, and that can be determined by vaginal washings. Vaginal secretions change. Endometrial biopsies sometimes tell whether or not ovulation is proceeding. Some women even have a little discomfort at the time of ovulation, nausea, at times a little pain between the menstrual periods. One cannot be certain, however, for some women have all these signs and are not ovulating. Two Frenchmen, Simonnet and Seguy, have made a similar observation. This is a domain in sterility which has not been studied as I hope it will be. The problem of sterility has so many ramifications that one cannot touch them all. But the problem of sterility is not being handled as it was a few years ago. It is not the money making proposition, perhaps, that some other forms of surgery are. There is nothing spectacular about it. It takes a lot of hard work and is done usually by those who are deeply interested in it.

DR. MILEY B. WESSON, San Francisco: I want to express my appreciation to Dr. Hagner for this presentation and for his original paper on the subject read in Philadelphia six years ago. Those who learned their surgical technic from the late William S. Halsted of Johns Hopkins Hospital know that silver wire is the suture of choice in all cases in which round cell infiltration about the stitches will vitiate the end results. Most surgeons have apparently forgotten his teachings. Dr. Hagner not only has profited by the precepts of his mentor but has called it to my attention on two occasions. The Hagner operation is a success because of the use of silver wire sutures. I have seen silver wire removed from the sites of herniotomies many years after they have been placed, and they were as bright and shiny as when introduced.

DR. J. H. TURNER, Houston, Texas: I have seen, in operating for acute bilateral epididymitis, cases in which both epididymides have been completely sectioned and a drain put in, and afterward these patients were fertile. On several occasions in our clinic we have purposely sectioned the epididymis and tied in a silkworm-gut drain for several days, allowing the patent ends of the tubules of the epididymis to unite. The operation for surgical treatment of the epididymis has previously been described by my brother, B. W. Turner. He also described the technic of excision of a nodule of the vas and the anastomosis. In cases in which the obstruction is above the inguinal ring we have been able to establish communication by passing a long silkworm-gut drain through the vas and afterward injecting some physiologic solution of sodium chloride, an insufflation of the vas, so to speak.

DR. SAMUEL R. MEAKER, Boston: My associates and I believe that one year of involuntary sterility justifies the carrying out of a complete diagnostic study. A year or two of delay in young patients would make little difference; but I feel strongly that when a woman is over 30 no time should be lost, because the definite peak of female fertility arrives some time in the midtwenties. From 30 on there is a steady diminution, so that delay in investigating these patients when the wife is on the down grade of fertility inevitably lessens the chance of successful results. I am glad that Dr. Lespinasse emphasized the item of diet, which I mentioned briefly. The ordinary mixed human diet contains all the vitamins needed, and more, including vitamin E. The fact that one can render laboratory animals infertile by putting them on artificial mixtures of foods lacking in various elements proves remarkably little with regard to human beings. In general one should be cautious about transferring conclusions based on the fertility of laboratory animals, maintained as they are under artificial conditions, to clinical human cases. My associates and I believe that the most important factor in the diet is protein insufficiency or protein starvation. In many of our patients, particularly male patients, in whom the semen gives a quantitative measure, whose protein intake is inadequate, the correction of that fault has brought about an objectively demonstrable improvement and not rarely a cure of sterility. Another point mentioned by Dr. Lespinasse is well taken; namely, that the seminal production, far from being constant, varies from time to time. I have repeatedly noticed great variations in the quality of seminal specimens, either for better or for worse, over a short period of months. These can usually be correlated with the constitutional state of the individual. I agree with Dr. Wharton that we are far indeed from having arrived at the desirable degree of technical perfection in dealing with tubal occlusions. In fact, we are so far from it that I myself am extremely disinclined to operate on any type of tubal blockade other than simple occlusions at the fimbriated ends.

DR. FRANCIS R. HAGNER, Washington, D. C.: Some of these semen donors write, speaking highly of themselves and their personal appearance. One thing that I failed to mention is that when the tubules of the epididymis are cut across to obtain the specimen to note the presence of motile spermatozoa, sometimes when it is put on a warm slide the spermatozoa are not motile. If a little warm physiologic solution of sodium chloride is run on the slide, active motility will be noted. Dr. Lespinasse spoke of the absence of the vas deferens. I had a case last year in which there was complete absence. I presented my case before the Congress of Surgeons and was going to do a vaso-epididymostomy. When I got in there I could not find the vas. I have also felt that leaving a drain would rather tend to the formation of scar tissue, and I have never done that because I think that in these operations it is desirable to obviate the presence of scar tissue as much as possible. An attempt is made to stop hemorrhage by pressure with small artery forceps. I would like to say a word about the epididymotomy operation. When I reported these cases many years ago I distinctly impressed the importance of not cutting the epididymis but to do multiple punctures and then pass a probe in and work it back and forth to evacuate the pus. I believe that in a good many of those cases if a wide incision is made there is much more liability to have sterility following such a procedure. Dr. Cunningham and I have had about the same relative number of cases in which a bilateral epididymotomy was done, and the incidence of sterility in those cases is about 40 per cent, which is about the same as in those in which operation is not performed.

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# ENDOCRINE FACTORS IN STERILITY

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Among the causes of deep unhappiness in marriage, sterility ranks high and has always done so from the beginning of history. A home without children lacks the stability of a home organized on a normal biologic and family basis with children. In a childless marriage, husband and wife are not held together by that strong common bond which leads parents to subordinate their own selfish desires gladly for the common welfare of their family.

The prevalence of sterility and thus its magnitude as a problem is indicated by the fact that, according to recognized authorities,[1] somewhat more than 10 per cent of all marriages in the United States and England are sterile, and Meaker [2] estimates that there are two million childless couples in the United States who are still in the child-bearing age.

Sterility varies from that which is complete and absolute to that which is only relative or partial and which is amenable to improvement by treatment. In many matings the fertility factor is not fixed but rises or falls according to various conditions. Furthermore, a sterile mating may result from the union of two persons of rather low fertility, but each of these persons may be fertile when remarried to a new partner of high fertility. Thus sterility is frequently not the fault of one partner only but is often due to the sum total of several minor faults in both partners, each of which taken by itself might not amount to much, but

Read before the Section on Urology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Reynolds, Edward, and Macomber, Donald: Fertility and Sterility in Human Marriages, Philadelphia, W. B. Saunders Company, 1924.
2. Meaker, S. R.: Human Sterility, Baltimore, Williams & Wilkins Company, 1934.

all of which added together cause the couple to be sterile. The secret of successful treatment lies in finding and correcting these faults.

For the purposes of this symposium on sterility I shall limit myself to a discussion of only the endocrine factors in sterility. Recent developments have been so enormous and rapid in the field of endocrine action in relation to human reproduction that to give a complete review of this very complicated subject, especially in a short paper such as this, is absolutely impossible. Furthermore, many points are as yet extremely puzzling and confusing, and therefore I shall have to limit myself to giving a brief general outline of some of the major features that seem to have been pretty well established.

Given a nonfertile mating in which thorough examination of both partners reveals no structural reason for sterility, there arises the question of an endocrine cause. It is well known that endocrine disturbance is a frequent cause of sterility. The late Allan Rowe over a period of many years studied about 4,000 patients from the endocrine point of view, and he and Lawrence [3] found definitely more sterility in the endocrinopathic patients than in the nonendocrinopathic patients and felt that a history of sterility suggested the possibility of an endocrine disturbance. Meaker [2] found that about 57 per cent of all his sterility patients showed some evidence of endocrine disturbance.

Although sterility occurs in such extreme endocrine abnormalities as gigantism, acromegaly, pituitary dwarfism, Simmonds' disease (pituitary cachexia), cretinism, Addison's disease and tumors of the adrenal cortex, I shall not discuss such cases, because in the great majority of them fertility is not their chief concern and also because such cases are so extreme that the diagnosis of some major endocrine disaster is obvious. I shall limit my discussion to the somewhat less striking type of endocrinopathy, in which the patient is apt to come to the urologist's office first complaining of sterility.

It is becoming increasingly apparent that the anterior pituitary is the most important and dominant member of all the endocrines—the master gland, so to speak—and that it influences and controls their actions, although it is reciprocally affected by them.

Although it is probable that insufficiency of the anterior pituitary during adolescence is responsible for most of the disorders of the other endocrine glands leading to sterility, in many adult patients, seen by the physician, complaining of sterility in marriage, the abnormal pituitary action is over, leaving some secondary result presenting—for example, hypoplastic ovaries—as the chief obvious endocrine fault at the time of examination.

Clinically there are three glands, disorders of which are mainly responsible for most endocrine sterilities—the anterior pituitary most frequently, the ovary and the thyroid—and it is with these three that I shall deal.

The anterior pituitary, the "master gland," controls the other endocrine glands and in both sexes influences the gonads, which operate under its control. The gonads have a double function: first, the production of essential germ cells and, second, the production of hormones or internal secretions that control the accessory reproductive organs and characteristics. The anterior pituitary stimulates each of the two functions of the gonads in the two sexes with a separate hormone. The follicle stimulating gonadotropic hormone of the anterior pituitary stimulates predominantly the germ cell line and thus stimulates ovarian follicle formation in the female and spermatogenesis in the male. The second gonadotropic hormone is the luteinizing hormone, which stimulates the theca cells of the ovaries to luteinization and the interstitial cells of the testis. Therefore it is not surprising that removal or destruction of the anterior pituitary results in degeneration of ovaries and testes and in failure to produce germ cells or hormones.

As a result of the action of these two hormones on the ovary, two ovarian hormones are produced. The follicle-stimulating hormone brings about follicle formation, which produces the ovarian hormone estrogen, and the luteinizing hormone causes luteinization with formation of the ovarian hormone progestin. Thus in the pituitary-ovarian relationship there are two pituitary hormones and two ovarian hormones, the presence or absence of which can be determined by biologic tests.

When it comes to the testis it is known that the anterior pituitary hormones stimulate the testis to the production of at least one testicular hormone. At present there is a great question as to whether two testis hormones are produced just as in the case of the ovary. There is some evidence in favor of a second testicular hormone, but the question is not yet settled and the entire testis hormone situation is not so clear as that of the ovarian hormones.

It has been found that in both sexes the injection of gonad hormones not only does not stimulate the gonads which produce them but is even injurious to them.[4] This is an important therapeutic point and is in accordance with the principle that no endocrine gland is stimulated by products which it itself produces—a most important fundamental principle. There is a reciprocal interaction between the gonads and the anterior pituitary, so that an increase in gonad hormone decreases the gonad-stimulating activity of the pituitary and, vice versa, a decrease in gonad hormone is accompanied by an increase in the gonad-stimulating power of the pituitary. Thus the deleterious effect of the injection of gonad hormones on the gonads themselves has been interpreted as being due to inhibition of the pituitary hormones necessary for the normal maintenance of the gonads.

Therefore, the administration of estrogenic substance or the active principle of the testis is not only not beneficial but is injurious to the ovaries or testes themselves and is contraindicated in cases of sterility. The only exception to this rule is in cases of habitual abortion, which is, so far as the end result goes, a cause of sterility. On account of animal experiments which showed that removal of the corpus luteum caused abortion, the hormone of the corpus luteum, progestin, has been used [5] with some success in cases of threatened and habitual abortion, on the basis that they might be due to a deficiency of natural progestin.

The relationship between the anterior pituitary and the gonads is such that, while proper function of the gonads may be prevented by inadequate secretion of the pituitary hormones, in some cases these hormones may be produced in normal amounts, but the defective gonads fail to respond to them. One can thus speak of primary hypogonadism in cases in which tests show

3. Lawrence, C. H., and Rowe, A. W.: Studies of the Endocrine Glands, Endocrinology **13**: 108 (July-Aug.) 1929.

4. Moore, C. R.: Hormones in Relation to Reproduction, Am. J. Obst. & Gynec. **29**: 1 (Jan.) 1935.

5. Krohn, Leon; Falls, F. H., and Lackner, J. E.: On the Use of the Lutein Hormone, Progestin, in Threatened and Habitual Abortion, Am. J. Obst. & Gynec. **29**:198 (Feb.) 1935.

plenty of gonadotropic hormones present but the gonads themselves are at fault, and of secondary hypogonadism which is due to defective production of hormones by the pituitary.

Therefore, from a therapeutic point of view the gonads in secondary hypogonadism, proved by biologic hormone tests, are best activated by pituitary gonad-stimulating hormones and not by gonad hormones.

Biologic hormone tests, of which the Aschheim-Zondek pregnancy test is a good example, represent a great advance in diagnosis in cases of sterility. At the present time by means of injections into rodents or monkeys of extracts from blood [6] or urine [7] and by endometrial biopsy [8] one can arrive at a pretty accurate estimation of the four hormones in women, the follicle-stimulating and the luteinizing hormones of the anterior pituitary and the two ovarian hormones, estrogen and progestin. This is a very important advance indeed, because it allows one to find out rather accurately the exact endocrine situation. Many cases that clinically appear alike are really very different endocrinologically and, in the absence of determining clinical signs, hormone tests are the only way of distinguishing, for example, between an amenorrhea due primarily to ovarian deficiency and one in which the amenorrhea is due primarily to failure of the pituitary to stimulate the ovary. The testis hormone in males can probably be best demonstrated by the effect on the comb growth of capons and also by the effect on the accessory genitalia of rodents.

In dealing with sterility of probable endocrine origin it is very important to find out which gland of internal secretion is primarily responsible in order to give intelligent treatment. This must be accomplished by a combination of clinical and laboratory observations, since either alone might lead one astray; for example, both thyroid deficiency and pituitary deficiency may result in obesity.

As I mentioned before, of the three glands hypofunction of which is responsible for most of the endocrine sterilities, much the commonest is anterior pituitary hypofunction, which may be either functional or due to pathologic damage. Coincidentally with this there may be hypofunction of the posterior lobe giving rise to bilobar failure of the pituitary, or there may be normal or increased function of the posterior lobe causing pituitary dysfunction. Probably the commonest pituitary type encountered clinically is a mild Fröhlich's adiposogenital dystrophy. Another pituitary cause of sterility in both sexes is the pituitary basophilism-adrenal cortex syndrome, the pathogenesis of which is not yet clear. It appears possible that it is the basophil cells of the anterior lobe which may produce the gonadotropic hormones.

In cases of hypofunction of the anterior pituitary, the signs and symptoms may differ according to whether bilobar failure or pituitary dysfunction is present, but there is a basic pattern to which all variations are apt to conform in a general way. Evidence of genital and ovarian hypoplasia is present. There is usually the history of the delayed appearance of puberty and later, in women, increasing intervals between periods with constantly less menstrual flow, progressing to amenorrhea. Some patients show extremes of stature, being either very tall or very short. Obesity, especially of the so-called girdle type, is very common. The hair may be scanty or may show a heavy overgrowth. The visual fields are apt to be disturbed. Laboratory examination is apt to disclose a moderately lowered basal metabolic rate. Tests show increased sugar tolerance in bilobar failure but a decreased sugar tolerance in pituitary dysfunction if the posterior lobe is hyperactive. The blood uric acid is raised. The specific dynamic action of protein is lowered, according to Goldzieher and Gordon.[9] Biologic tests show the absence of anterior pituitary gonadotropic hormones.

As causes of sterility secondary in importance to the anterior pituitary and yet potent factors come primary hypofunction or dysfunction of the ovaries, and hypothyroidism.

In sterility that is due to inherent faulty function of the ovaries themselves quite independent of any secondary effects from any other gland such as pituitary or thyroid, there is often the history of easy fatigability and headache, and usually great nervous instability. There is no characteristic habitus, but the genitalia are apt to be hypoplastic. Menstruation is sometimes normal but more often irregular and scanty, and dysmenorrhea is common. The biologic hormone tests show absence of ovarian hormones but increased anterior pituitary gonadotropic hormone, probably the result of compensatory hyperactivity of the pituitary in an effort to stimulate the sluggish ovary.

Another ovarian cause of sterility is the condition of anovulatory menstruation, of which there has been considerable mention made recently. This has been described by Novak [8] as follows: Just after menstruation the graafian ovarian follicle begins to mature and produce increasing amounts of estrogenic substance in the normal manner. However, for some reason it does not rupture but keeps on beyond the stage of usual maturity, until the ovum dies, the granulosa degenerates, production of estrogenic substance ceases and finally, after an interval, bleeding occurs. Thus there is produced a periodic bleeding which looks like normal menstrual bleeding but in which the patient is sterile because there are no ova. The diagnosis can be made by microscopic examination of the endometrium obtained by a biopsy curet shortly before an expected flow. In the normal woman there is at that time present in the ovary a functioning corpus luteum producing progestin and bringing about the characteristic secretory phase of the endometrium. If, however, the endometrium shows only proliferative endometrium, with no evidence of secretion, it can be concluded that there is an absence of progestin because of the absence of a functioning corpus luteum in the ovary and that therefore ovulation has not occurred.

In sterility due to hypothyroidism there is general sluggishness of the whole organism with a tendency to overweight. Hair is scanty and there is a tendency to skin diseases and constipation. The basal metabolic rate is depressed, the blood cholesterol is raised, and in extreme cases the typical signs and symptoms of myxedema are present. Menstruation is characteristically erratic, the amount of flow varying from scanty to very profuse, and the length of time between periods varying in an irregular and erratic way.

6. Frank, R. T.: Sex-Endocrine Factors in Blood and Urine in Health and Disease, in Glandular Physiology and Therapy, Chicago, American Medical Association, 1935; J. A. M. A. **104:** 1991 (June 1) 1935.

7. Albright, Fuller, and Halsted, J. A.: Studies on Ovarian Dysfunction: II. The Application of the "Hormonal Measuring Sticks" to the Sorting Out and to the Treatment of the Various Types of Amenorrhea, New England J. Med. **212:** 250 (Feb. 7) 1935.

8. Novak, Emil: Some Newer Aspects of Reproductive Physiology, Am. J. Obst. & Gynec. **30:** 495 (Oct.) 1935.

9. Goldzieher, M. A., and Gordon, M. B.: Determination of the Specific Dynamic Action of Protein, and Its Value in the Diagnosis of Pituitary Disease, Endocrinology **17:** 569 (Sept.-Oct.) 1933.

Undescended testicles are a potential cause of sterility; it has been shown that if they are still undescended after puberty they will in most cases irreparably have lost their ability to produce spermatozoa. This makes it imperative to have the testes in the scrotum before puberty. In the last few years there have been many reports of the bringing about of the descent of undescended testicles by the administration of gonadotropic substance. In almost all these cases the principle used has been the anterior pituitary-like substance of pregnancy urine. There seems to be no doubt of the efficacy of this in many cases, but the action is erratic and inconstant and, if the testes do not come down after a reasonable course of treatment, surgery is to be preferred to a prolonged series of treatments, which conceivably might have disturbing endocrinologic consequences.

### THERAPY

In spite of the remarkable advances made in reproductive physiology there is still uncertainty on many points, so that it is not surprising that the therapeutic applications of these new advances are not yet altogether clearly defined. In general, the treatment of endocrinopathic sterility has not been very successful. Part of this has been due to ignorance of the exact physiology and pathology involved, so that various gland extracts have been used indiscriminately on the basis of a vague hope that extracts of organs obviously related to reproduction and pregnancy might somehow benefit sterile patients and increase their fertility. From the point of view of intelligent and effective treatment it is of fundamental importance in any given case to arrive at an accurate diagnosis of just which endocrine link is missing or at fault. For example, the administration of the pituitary gonad-stimulating principle is of absolutely no use whatever if tests show that the patient's own pituitary is already producing an excess of these to which the ovary will not respond.

In accordance with the fact that the administration of products made by the gonads not only does not stimulate them but has even been shown to injure them, the use of ovarian substance or of the two ovarian hormones, estrogenic substance and progestin, and of testis hormone is contraindicated in cases of sterility. The only exception to this rule is the use of the corpus luteum hormone, progestin, in cases of threatened or habitual abortion, already referred to.[5]

In cases in which the tests have shown the absence of anterior pituitary hormones their use is rational. It is very doubtful whether pituitary preparations given by mouth are effective at all. To date the hormones as obtained from the anterior pituitary itself have not been generally available. The first of the pituitary gonadotropic substances to be put on the market commercially and the one which has had a great vogue and has been used widely is the luteinizing factor, obtained from pregnancy urine. This is called the anterior pituitary-like gonadotropic substance. This is not an entirely pure hormone product, but its general effect is to stimulate the interstitial cells of the testis and to stimulate the theca cells of the ovaries to luteinization. The other anterior pituitary gonadotropic hormone has been available commercially for so short a time that few clinical results with it have been reported as yet. This hormone is obtained in comparatively pure form from castrate or menopause urine and is the follicle-stimulating fraction that stimulates the ovaries to follicle formation and the production of estrogenic substance and the testes to spermatogenesis.

Ovarian or testicular hypoplasia is usually due to the failure during adolescence of the necessary endocrine stimulus of the anterior pituitary. At the end of adolescence the genital developmental impulse usually stops and in most cases can never be reactivated by any endocrine treatment. Therefore, if pituitary failure has occurred during adolescence and the testes or ovaries have never developed and are markedly hypoplastic, usually nothing can be done for such patients when they are adults, because it is too late and the developmental impulse is permanently gone. However, the degree of hypoplasia may vary, and cases in which the hypoplasia is not marked are not necessarily beyond hope, even in adults, and are worth a clinical trial with gonadotropic pituitary hormones. Were such patients treated with gonad-stimulating pituitary preparations during adolescence, before it was too late, much might be done for them.

Furthermore, in sterile adults in whom the tests show absence of pituitary hormones a trial with them would seem worth while, as there is nothing to lose and everything to gain.

In amenorrhea due to hypopituitarism and in Fröhlich's adiposogenital dystrophy, therapy with luteinizing substance from pregnancy urine alone has been disappointing. This is not surprising in view of the fact that in many of these cases genital hypoplasia is so far advanced as to be beyond salvage, as already mentioned, and also in view of the fact that it is the other, the follicle stimulating, principle, only recently available commercially, that is theoretically the proper one to use to stimulate graafian follicle formation and spermatogenesis. In view of this last fact it is puzzling that stimulation of spermatogenesis following injections of the luteinizing factor has been reported by a few workers.[10] It would be interesting to see whether this could be consistently confirmed in a large series, as its use has been disappointing to me and also to others.

The simultaneous administration of both the follicle stimulating and the luteinizing factor has been shown to have a much greater effect than the simple sum of one added to the other and is referred to as the principle of augmentation or synergism. Therefore at the present time the simultaneous administration of both the follicle stimulating and the luteinizing factor would seem to be the best way to administer pituitary gonadotropic principles in cases of gonadal hypofunction, which have been shown by biologic tests to be secondary to anterior pituitary failure.

Another form of treatment in pituitary gonadal sterility is stimulating roentgen therapy directed to the pituitary and the gonads. Some esteem this treatment very highly and report good results[11] in increasing fertility in many cases.

Last, but far from least, the oral administration of thyroid is indicated in all cases presenting even a low normal metabolism, and obesity. In some way it also seems to act as a most valuable adjuvant in pituitary-gonad cases, possibly because it activates sluggish bodily processes. It is one of the most valuable aids in sterility, either alone or in combination with other therapy.

10. Brosius, W. L., and Schaffer, R. L.: Spermatogenesis Following Therapy with Gonad-Stimulating Extract from Urine of Pregnancy, J. A. M. A. **101**: 1227 (Oct. 14) 1933. Charny, C. W.: A Clinical Study of Male Sterility, J. Urol. **32**: 217 (Aug.) 1934. Heckel, N. J.: A Clinical Study on the Efficacy of Hormones in Male Sterility, Urol. & Cutan. Rev. **39**: 463 (July) 1935.

11. Bland, P. B.; First, Arthur, and Goldstein, Leopold: The Clinical Investigation of Functional Sterility in the Female, J. A. M. A. **105**: 1231 (Oct. 19) 1935.

CONCLUSIONS

1. Much of the treatment of endocrine sterility in the past has been unsuccessful partly because miscellaneous gland therapy was used indiscriminately, based on vague hopes rather than on science.

2. Clinically there are three glands, the hypofunctioning of which are mainly responsible for most endocrine sterilities—the anterior pituitary most frequently, then the ovary and the thyroid.

3. In dealing with sterility of probable endocrine origin, it is of fundamental importance to find out by means of both clinical and laboratory observations, including biologic hormone tests, which gland is primarily responsible, in order to give the proper treatment intelligently and effectively.

4. The therapeutic injection of gonad substance not only does not stimulate the gonads but injures them and is contraindicated in sterility.

5. At the present time the simultaneous administration of both pituitary gonadotropic principles would seem to be the best form of therapy in cases of gonadal hypofunction which have been shown to be secondary to failure of the anterior pituitary.

6. Thyroid extract is a very valuable aid to the treatment of sterility.

7. Since nothing can be done for sterile adults with markedly and completely hypoplastic testes and ovaries, it is desirable for adolescents who present any endocrine symptoms, such as delayed appearance of the catamenia, to consult a physician and have treatment before it is too late and the developmental impulse is exhausted.

8. The therapy of endocrine sterility is not yet clearly defined in every way. However, in the last few years scientific progress has been made and more will undoubtedly follow in the near future.

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ABSTRACT OF DISCUSSION

DR. MOSES SWICK, New York: Our knowledge concerning the sex cycle in the female is more clearly defined and advanced than in the male, perhaps because of more accessible methods of attack for investigation or because of the underlying differences in physiologic response in the two sexes. As Frank states, "in the healthy adult female a cyclic activity of the pre- or anterior pituitary is manifested by the cyclic blood and urinary curves. In the male there is no evidence of a prepituitary cycle or of a senile condition corresponding to the menopause." The testis hormones have been demonstrated in the urine. No cycle has been found and little correlation between functional diseases and changes in the humoral balance as yet has been discovered. Organic disease in the male can produce changes in the excretion of the gonadotropic principle. In the problem of sterility it may be theoretically necessary to deal not alone with the question of proper hormone selection for a given case but with the added difficulty of antihormone formation to the specific hormone as stressed by Collip, which may account for a state of supposed refractoriness. As stated by Moore, in the male, testis hormone is secreted continuously or periodically in different animals, secretion being largely under the influence of the anterior pituitary. It is not a testicular stimulant. Its primary function is the control of the accessory reproductive organs. The synthesis by Ruzicka and his co-workers recently of the pure male hormone testosterone, which belongs to the family of sterols, is a chemical achievement of great importance. Biologically it has been shown to induce the characteristic comb changes in the capon and growth of the accessory reproductive organs of the mammal. These compounds when they become commercially available may theoretically prove to be of value either alone or in conjunction with proper anterior pituitary hormone therapy in certain types of sterility. However, as pointed out by Dr. Chute, testis hormone injections of sufficient concentration may be injurious to the gonad tissue.

# THE SMALL INTESTINE

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Clinicians are beginning to attach some importance to the roentgen study of the small intestine. Relatively little investigative work has been done on this portion of the digestive tract by radiologists, and because of this the interpretation of lesions of the small intestine is much more difficult than of other portions of the gastro-intestinal tract. Consequently, only obvious lesions have been diagnosed. The difficulty of diagnosis, it seems to me, presents a challenge to those of us interested in this viscus. To accept this challenge, it is essential that collective studies be made of the small intestine in healthy individuals and in patients having lesions of the small intestine. It is well known that lesions involving other portions of the gastro-intestinal tract as well as conditions outside of it may exert a profound influence on the mechanics and pattern of the small intestine. Any investigation, therefore, should include a careful consideration of all such factors.

The small intestine has been amenable to being adequately studied by physiologic, chemical and roentgen methods in most instances, either individually or simultaneously, since the development of intestinal intubation by Miller and Abbott.[1] All methods are tedious and time consuming and considerable additional investigation will be necessary before such studies will be practical as routine procedures in gastro-intestinal examinations. It would be ideal if our knowledge of the small intestine in health and disease would progress to such an extent that it would be possible to correlate certain symptom complexes with lesions of this tract and roentgen studies be employed with the assurance that roentgenologists could affirm or disprove the presence of a lesion of this portion of the bowel. At any rate, with increased experience our ability to recognize abnormalities in the small intestine is improving. It is felt that the small intestine is the site of many more lesions than have been attributed to it by roentgenologists and clinicians. Many lesions of the small intestine undoubtedly have been attributed to neurosis because of failure adequately to study the entire gastro-intestinal tract.

In previous papers my associates and I [2] have presented a plea for a standard meal, so that one radiologist may compare his results with those of another. Our observations [2a] indicate that the pattern of the small intestine will vary considerably, depending on the composition of the foodstuff it receives. It varies also with the consistency of the meal, its size, the gastric emptying time and the tonicity of the intestinal tract. Furthermore, data have been collected by ourselves and others which indicate that certain pathologic conditions which only indirectly affect the intestinal tract may cause a very profound change in the small intestine pattern. Furthermore, if radiologists are to

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Read before the Section on Radiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Miller, T. G., and Abbott, W. O.: Small Intestinal Intubation: Experiences with a Double-Lumened Tube, Ann. Int. Med. **8**: 85-92 (July) 1934.

2. (*a*) Ravdin, I. S.; Pendergrass, E. P.; Johnston, C. G., and Hodes, P. J.: The Effect of Foodstuffs on the Emptying of the Normal and Operated Stomach and the Small Intestinal Pattern, Am. J. Roentgenol. **35**: 306-315 (March) 1936. (*b*) Pendergrass, E. P.; Ravdin, I. S.; Johnston, C. G., and Hodes, P. J.: Studies of the Small Intestine: II. The Effect of Foods and Various Pathologic States on the Gastric Emptying and the Small Intestinal Pattern, Radiology **26**: 651-662 (June) 1936.

assist in the study of food allergy and its effects on gastro-intestinal motility and pattern one must have a base line from which to draw comparisons.

The meal that we use consists of 5 ounces (140 Gm.) of barium sulfate and 5 ounces (150 cc.) of water. Such a meal has the consistency of a thick pabulum but allows excellent visualization of the mucosal pattern. The normal stomach empties such a meal in the majority of instances within two hours; occasionally the period is as long as three hours. The small intestine stream is continuous with little if any regurgitation or peristaltic rushes. In the beginning the jejunal pattern has a somewhat obscured herringbone appearance. As the meal passes distally the herringbone pattern becomes more evident and this is followed by a feathery, snowflaked pattern, the latter being due to retained barium in the vasa digestiva. Usually no central lumen is discernible in the jejunum. There is a tendency for the jejunum to have segmental contractions, which have been interpreted as being due to circular and longitudinal muscle contractions. In such areas the pattern tends to form longitudinal folds. Elsewhere in the jejunum the folds are transverse. Occasionally one sees a wavy appearance, which is probably due to rapid motility at the moment. In the ileum the pattern is frequently that of a series of small irregular boluses. Occasionally the mucosal pattern is seen and suggests coins placed one on the other. The intermucosal space is usually wider than that seen in the jejunum. No gas is ever found in the small intestine of the normal individual.

The head of the column reaches the cecum occasionally in one and one-half hours. In most instances it requires from two to three hours to reach the cecum and from four to six hours for the intestine entirely to empty itself. Under control circumstances the small intestine motility is so gradual that most careful observation is necessary to detect peristaltic movements, segmental contractions and changes in the mucosal pattern. We believe this is extremely important, and when these phenomena are apparent at a glance, we immediately assume that there is something abnormal. On one occasion in a healthy control the small intestine motility was very rapid, the head of the column reaching the cecum within thirty-five minutes. These phenomena are similar to those seen after the administration of magnesium sulfate. We are unable to account for this. I have seen this before in patients who stated that there occurred abdominal cramps after taking barium sulfate whereas under the conditions usually imposed on the gastro-intestinal tract no such symptoms are present.

The exact length of the small intestine during life is not known. It is generally agreed that the upper three fifths of the small intestine consists of the jejunum and that generally this lies to a large extent in the left side of the abdomen. The jejunum, or "hungry gut," is larger in diameter than the ileum, the diameter of the small intestine normally decreasing from the duodenal jejunal flexure to the ileocecal valve.

The lumen of the small intestine as a whole seems to be smaller in fat individuals as compared to thin. I have an impression also that there is a difference in the size of the intestine in men and in women, but further control studies are necessary before making a definite statement.

The small intestine not only plays a major rôle in preparing foodstuffs for digestion but it also is the portion of the gastro-intestinal tract which is most active in the absorption of the products of digestion. Forssell[3] and Cole[4] believe that, during digestion, digestive compartments and digestive alveoli referred to as a feathery snowflaked pattern are formed as a consequence of what they have termed the autoplasty of the mucous membrane. A variety of patterns of the small intestine may result not only from variations in the muscle tonus but also in rearrangements of the mucous membrane folds.

The examination of the small intestine requires several hours as a rule, and occasionally its physiologic function has been disturbed as a result of the patient having developed a headache because of food being withheld. We have also been unable to determine what part psychic or emotional disturbances may take in influencing the small intestine motility and pattern, but we have reason to believe that fear is occasionally a potent factor.

The thick meal in our experience does not cause any increase in the frequency of impaction. If one fears this, a laxative or dose of liquid petrolatum after the completion of the examination should prevent one from developing an impaction. The taste is bland and there are no more complaints of this than of other mixtures.

Normal variations and anomalies occur more frequently than was anticipated, and, as elsewhere, the variants will probably occur in a frequency proportional to the thoroughness of the examination and one's ability to detect them.

Very small diverticula (from 1 to 3 mm.) as well as larger ones are not uncommon.

The finding of the small intestine on the right side of the abdomen is usually associated with a left sided colon.

Retroperitoneal herniation of the small intestine may be recognized by the fact that usually it may form a conglomerate mass in the middle of the abdomen and motility may be delayed considerably.

Occasionally the position of the small intestine (riding over the colon) is such that it may lead to the development of a megacolon and occasionally to obstruction.

We have studied a variety of intrinsic lesions that will affect the pattern and motility of the small intestine, many of which have been previously described by other authors. These include tumors of the small intestine, worms, obstruction, ileitis, tuberculosis, nephrosis, primary jejunal ulcers (individuals in whom a gastro-enterostomy has not been performed) and secondary jejunal ulcers.

Intussusception of the small intestine may occur in any portion of the intestine. Small intrinsic tumors have been present in the two instances in which we have observed this phenomenon in the jejunum.

Radiologists have been called on by some to diagnose the point at which the intestine is obstructed. We have been impressed with the number of variants from the position of five groups of small intestine coils described by Cole.[5] We have noticed a marked difference between two different examinations in the same individual and because of this we feel that the radiologist should be extremely careful in identifying for the surgeon the point of obstruction in the small intestine.

3. Forssell, Gösta: Studies of the Mechanisms of Movement of the Mucous Membrane of the Gastro-Intestinal Tract, Am. J. Roentgenol. **10**: 87 (Feb.) 1923.

4. Cole, L. G.: Motor Phenomena of the Stomach, Pylorus and Cap Observed Roentgenographically, Am. J. Physiol. **42**: 618, 1917.

5. Cole, L. G.; Pound, R. E.; Cole, W. G.; Morse, R. R.; Headland, C. I., and Naslund, A. W.: Radiologic Exploration of the Mucosa of the Gastro-Intestinal Tract, Saint Paul and Minneapolis, Bruce Publishing Company, 1934.

Various drugs,[6] especially the sedative group, have a profound effect (delayed motility and small intestine gas) on the gastro-intestinal tract for at least twenty-four hours and in some instances as long as five days. The radiologist therefore should be careful to exclude a drug effect before making an interpretation of obstruction or delayed motility.

Other lesions that will disturb the normal physiology and that have received certain attention from the radiologist are extrinsic lesions such as tuberculous (mesenteric) lymph nodes and abdominal tumors. There is a group of abdominal lesions that will affect the small intestine reflexly. These include renal stones (with crises), gallbladder disease, adrenal tumors and retroperitoneal extravasations and infection. Retroperitoneal tumors and perinephric abscess, and possibly kidney infection, metastatic carcinoma and tuberculous peritonitis, in fact, anything that will give rise to peritoneal irritation, will disturb the physiologic function of the small intestine. The frequent complaint of abdominal discomfort with gas can be explained in a great many instances by disturbed function of the small intestine and has been misinterpreted by all patients and many physicians.

Extra-abdominal lesions may also affect the small intestine. These include hyperthyroid and hypothyroid disease. We have made a collective study of twenty-five patients before and three months after operation. The results of this study are being prepared now. Pituitary and brain tumors, diabetes insipidus, tabes, neurocirculatory and cardiac disease and spinal cord lesions will profoundly affect the physiology of the small intestine. It is necessary, therefore, to bear these conditions in mind in evaluating the x-ray observations.

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## ABSTRACT OF DISCUSSION

DR. HARRY M. WEBER, Rochester, Minn.: Dr. Pendergrass and his collaborators deserve praise for the excellent work they are continuing on the anatomy and physiology of the small intestine. Hitherto this field of roentgenologic diagnosis has been somewhat neglected, but the work of these men has been richly informative and stimulating, and we who are particularly interested in gastro-enterologic roentgenology do well to commend and to encourage continued efforts along these lines. At the suggestion of Dr. Pendergrass I take the liberty of extending his discussion to remark briefly on the roentgenologic manifestations of pathologic processes affecting the small intestine. Like the colon, the small intestine is a tubular organ, and, in their morphology and pathogenesis, the pathologic processes which occur in the small intestine are similar to those which occur in the colon. Thus there are tumefactive processes which may be neoplastic, e. g., carcinoma, sarcoma and benign tumors, or non-neoplastic, e. g., tuberculoma and other tumor-producing inflammatory processes. More or less diffuse ulcerative processes occur as well, such as tuberculous enteritis and the enteritis (ileitis) to which Krohn and his collaborators called attention. Certain deficiency diseases are manifested by roentgenologically demonstrable morphologic changes in the small intestine. Finally, the small intestine is relatively frequently involved secondarily by pathologic processes, especially tumors, of neighboring and contiguous organs, deforming it segmentally either by direct extension and invasion or by producing a trophic type of ulceration into its lumen. From typical examples it is plain that lesions of the small intestine are demonstrable roentgenologically and that a satisfactory differential diagnosis can be elaborated by using the principles proved sound through long experience in the roentgenologic diagnosis of diseases of the large intestine. The roentgenologic examination of the small intestine is difficult only because its relatively complicated anatomic arrangement makes the necessary close roentgenoscopic and roentgenographic scrutiny of each small portion of its entire length seem comparatively arduous and time consuming, and because its rapid and involved motility may produce a variety of peculiar and quickly changing mucosal patterns, not to be too readily endowed with pathologic significance.

DR. E. V. POWELL, Temple, Texas: This report of pathology of the small intestine is very valuable. I hope to avoid repeating an error I made a number of years ago in examining a patient who complained of symptoms indicative of obstruction in the lower small intestine. I reported no lesion found. About a year later the patient was again examined, at that time by barium sulfate enema. From the second examination I reported a small malignancy near the apex of the sigmoid. At operation a primary carcinoma of the ileum that involved the adjacent sigmoid by direct extension was found. I doubtless had missed it the first time I examined the patient.

6. Abbott, W. O., and Pendergrass, E. P.: Intubation Studies of the Human Small Intestine: V. The Motor Effects of Single Clinical Doses of Morphine Sulfate in Normal Subjects, Am. J. Roentgenol. **35**: 289-299 (March) 1936.

## SEASONAL HAY FEVER AND ASTHMA DUE TO MOLDS

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In a previous report it was shown[1] that the nonpathogenic spores of molds found in the air are frequent causes of asthma and nasal allergy. Thus far no emphasis has been placed on the fact that these symptoms frequently assume a seasonal character and become confused with pollen hay fever and asthma. It is my purpose in this paper to call attention to a group of patients whose respiratory manifestations are confined to the summer or aggravated in that season by sensitiveness to fungi instead of pollen.

Over a period of several years, impressions gained from clinical and laboratory observations with respect to seasonal hay fever and asthma culminated three or four years ago in the belief that these symptoms are not always due to pollen. The fact that there are many patients who respond only partially or not at all to pollen treatment led to the suspicion that something additional might be found with regard to the etiology. Since it has been repeatedly established that in pollen hay fever the symptoms vary almost directly with the height of the pollen count, it was perplexing to encounter patients whose symptoms did not at all agree with the daily pollen determinations. The histories of some of these patients were either not as definite with regard to the onset or cessation of symptoms as they are customarily found in pollen cases or the symptoms overlapped the season at both ends. Negative or questionable skin and mucous membrane tests with pollen constituted another disturbing observation. And finally, while pollen counts were being made, summer after summer, the spores of molds and rusts were being encountered on the slides. These occurred in such large numbers at times that one could not help but speculate on the possible rôle they might have in the causation of hay fever. *(Continued on page 1864)*

This investigation was in part aided by a grant from the Abbott Laboratories, North Chicago, Ill.

This paper is the fourth of a series entitled "Studies on the Relation of Micro-Organisms to Allergy."

From the Allergy Clinic, Department of Medicine, and the Department of Bacteriology, Northwestern University Medical School.

Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, May 15, 1936.

1. Feinberg, S. M.: Mold Allergy: Its Importance in Asthma and Hay Fever, Wisconsin M. J. **34**: 254 (April) 1935.

*Essential Points in Fifty-Four Cases of More or Less Seasonal Asthma or Hay Fever in Which Fungus Sensitization Could Be Shown to Play a Definite Part*

| | Age | Duration, Years | Season | Diagnosis | Tests with Fungi: Alternaria | Aspergillus | Penicillium | Mucor | Hormodendrum | Monilia | Chaetomium | Yeasts | Trichophyton | Other Reactions | Evidence for Etiology | Treatment with Mold Extracts | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Sheldon H. | 6 | 1 | July 15-October | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag + | Early onset for ragweed | None | |
| 2. James H. | 8 | 5 | May-November; slight perennial | HFA | + | + | + | .. | + | .. | .. | + | + | Rag +, grass + | Onset too early and end too late for pollen; attack during stock show in November | None | |
| 3. Harold K. (aviator) | 30 | 8 | April-October slight perennial | HF | + | + | .. | .. | .. | .. | .. | .. | .. | Pollen 0 | Negative to pollen; flying increases symptoms; above 8,000 feet symptoms disappear | None | |
| 4. Tommy L. | 11 | 7 | Perennial; worse in summer | A&HF | + | .. | .. | .. | .. | .. | .. | + | .. | Rag ?; grass ? | No effect from pollen treatment; observation during season | None | |
| 5. Sherwin M. | 8 | 3 | May-October; slight perennial | A&HF | + | .. | .. | .. | .. | .. | .. | + | .. | Rag +, others 0 | Early onset; symptoms on mold days | Late | |
| 6. Frank McK. | 16 | 5 | July-November; slight perennial | HF | + | .. | .. | .. | ? | .. | .. | + | + | Rag +, others 0 | Onset earlier than ragweed season | Late | |
| 7. Mary N. | 6 | 3 | July-October | HFA | + | .. | .. | .. | .. | .. | .. | + | .. | Rag +, others 0 | Early onset; symptoms on mold days | Late | |
| 8. Harold O. | 22 | 18 | July; slight perennial | HF | + | + | .. | .. | .. | .. | .. | + | .. | None | Negative to pollen; symptoms on mold days | None | |
| 9. Ina S. | 8 | 6 | May-November; slight perennial | HFA | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag +, others 0 | Observation during season; no results from pollen treatment | None | |
| 10. Stanley S. | 7 | 4 | May-October; slight perennial | HF&A | + | + | .. | .. | .. | .. | .. | + | + | Rag +, other pollen 0 | Onset prior to ragweed season; symptoms on mold days; no results from previous pollen treatment | Late | |
| 11. Michael W. | 5 | 3 | May-October mostly | HF&A | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag ?, other pollen 0 | Onset prior to ragweed season; observation on mold days | Late | |
| 12. Jules S. | 7 | 3 | June-December | HF, cough | + | .. | .. | .. | .. | .. | .. | .. | .. | Grass + | Pollen reactions incompatible with season | None | |
| 13. Robert W. | 5 | 2 | May-November | HF&A | + | + | + | + | .. | .. | .. | .. | .. | Rag +, others 0 | Ragweed reaction does not explain season; symptoms in hay fever resort | Late | |
| 14. Dolores B. | 6 | 3 | June-Fall; slight perennial | HF&A | + | .. | .. | + | + | .. | .. | .. | .. | Rag + | Onset earlier than ragweed season | Late | |
| 15. Bud B. | 10 | 4 | July-October | HF&A | + | .. | .. | .. | .. | .. | .. | .. | .. | None | Pollen negative; worst symptoms during heavy mold days; attacks when playing in hay loft | None | |
| 16. Howard C. | 10 | 8 | May-November mostly | A | + | + | .. | + | .. | .. | .. | + | .. | Rag +, grass 0 | Worst on heavy mold days; season; ragweed treatment gave no relief | None | |
| 17. Harriet D. | 39 | 14 | Perennial; worse in August and September | A&HF | + | + | .. | .. | .. | .. | .. | + | .. | Rag 0, foods +, feathers + | Pollen negative; residence in old homes caused attacks | None | |
| 18. Joan F. | 6 | 2 | July-October | HF&A | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag +, other pollen 0, foods + | Symptoms before ragweed season | Late | |
| 19. Marjorie G. | 7 | 3 | May-October | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag +, grass +, trees +, foods + | Symptoms on pollen-free days | Late | |
| 20. Mrs. G. G. | 25 | 5 | June-cold weather | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | None | No pollen reactions | None | |
| 21. Harry P. | 26 | 15— | Perennial; worse in late summer | HF | + | ? | .. | .. | .. | .. | .. | .. | .. | None | Seasonal aggravation with no pollen reactions | None | |
| 22. Jack R. | 20 | 6 | Late June-October | HF | + | + | .. | .. | .. | .. | .. | .. | .. | Rag ?, grass ? | Symptoms on pollen-free days; no results from pollen treatment | Late | |
| 23. Eugene G. | 17 | 10 | May-October; occasionally perennial | HF&A | + | .. | .. | .. | .. | .. | .. | + | + | Rag +, others 0 | Symptoms prior to ragweed season; no improvment by pollen treatment | None | |
| 24. Suzanne H. | 8 | 3 | May-November; slight perennial | HF&A | .. | .. | .. | .. | .. | + | + | + | .. | Rag ?, grass ? | Indifferent results from pollen treatment; symptoms outside of pollen seasons and between pollen seasons | None | |
| 25. Andrew I. | 9 | 4 | May-October; occasionally winter | A | + | + | .. | + | .. | .. | .. | + | .. | Pollen 0, foods + | Seasonal, without pollen reactions; attacks on exposure to dust, old leaves, basement | None | |
| 26. Marshall S. | 11 | 6 | May-November | HF, slight A | + | + | .. | .. | .. | .. | + | .. | .. | Rag +, others 0 | Season; observation during season; pollen treatment gave no results | None | |
| 27. Judd B. | 28 | 20 | Summer mostly | HF&A | + | + | + | .. | + | .. | .. | + | + | Pollen ? | Bad on nonpollen days in summer; no results from several seasons of pollen treatment; some benefit from mold treatment | Yes | 75% |
| 28. Jack L. | 13 | 12 | Mostly June-Fall | A&HF | + | + | + | .. | .. | .. | .. | .. | .. | Rag ?, others 0 | Observation during season; attacks at circus; poor results with pollen therapy | Late | |
| 29. John B. | 28 | 9 | April-October | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | None | Negative pollen tests; observation during season; results of mold treatment | Yes | 75% |

Abbreviations are as follows: HF, hay fever; A, asthma; +, definite reaction varying from one to four plus; 0, negative; ?, reaction only positive intradermally. The routine tests as noted in this table were made by the scratch method, and the reactions recorded are of the immediate type. Other fungi than those tabulated were used in testing but for the sake of brevity are not recorded here.

*Essential Points in Fifty-Four Cases of More or Less Seasonal Asthma or Hay Fever in Which Fungus Sensitization Could Be Shown to Play a Definite Part—Continued*

| | Age | Duration, Years | Season | Diagnosis | Tests with Fungi: Alternaria | Aspergillus | Penicillium | Mucor | Hormodendrum | Monilia | Chaetomium | Yeasts | Trichophyton | Other Reactions | Evidence for Etiology | Treatment with Mold Extracts | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30. Arthur B. | 14 | 5— | May-October; slight perennial | HF&A | + | .. | .. | .. | .. | .. | .. | + | .. | Rag +, grass + | Symptoms on pollen-free days; pollen treatment gave partial results; addition of mold treatment improved results | Yes | 100% |
| 31. Mrs. M. C. | 30 | 3 | April-October | HF&A | + | + | .. | .. | .. | .. | .. | + | .. | Rag +, other pollen 0 | Symptoms outside of ragweed season; addition of mold treatment improved results | Yes | 100% |
| 32. Barbara D. | 5 | 3 | Mostly summer | HF&A | + | .. | .. | .. | .. | .. | .. | + | .. | Rag +, others 0 | No results from pollen treatment; observation during season; good results with mold desensitization | Yes | 75% |
| 33. Avis G. | 30 | 20 | April-December; slightly in winter | HF&A | + | + | + | .. | .. | .. | .. | + | .. | Pollen 0, foods, etc. + | Several seasons of intensive pollen treatment without results; severe symptoms on mold and pollen-free days; systemic reactions and improvement with mold treatment | Yes | 75% |
| 34. Mrs. S. G. | 39 | 15 | May 10-October | A | ? | ? | ? | .. | .. | .. | .. | .. | .. | None | Seasonal symptoms without pollen reactions; previous pollen treatment without benefit; good results from mold treatment | Yes | 90% |
| 35. Irene H. | 8 | 6 | Perennial; worse in summer | HFA | + | + | .. | .. | + | .. | .. | + | .. | Rag +, others 0 | Season; observation during season; results of mold desensitization | Yes | 98% |
| 36. William K. | 6 | 4 | July-November; slight in winter | HF | .. | + | .. | .. | .. | .. | .. | + | .. | Rag +, grass ?, foods + | Symptoms overlapping the pollen seasons; severe symptoms on mold days | Yes | 0% |
| 37. Minnie L. | 60 | 4 | Perennial; worse in summer | A&HF | + | + | + | .. | .. | .. | .. | .. | .. | None | other reactions negative; season; results of desensitization | Yes | 95% |
| 38. Harry P. | 26 | 10 | May-October | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | None | Negative to pollen; season; observation on mold days; results of treatment | Yes | 75% |
| 39. Jack M. | 8 | 4 | April-frost | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag +, others 0 | Season; negative to grass and trees; observation; results of mold treatment; systemic reactions during treatment | Yes | 75% |
| 40. Glen R. | 18 | 11 | April-October; slight perennial | HF&A | + | + | + | .. | .. | .. | .. | .. | .. | Rag +, grass + | Overlapping of pollen season; worse at times when no pollen in air; results improved by addition of mold treatment | Yes | 90% |
| 41. Elaine R. | 14 | 10 | May-October; slight perennial | HF&A | + | .. | .. | + | + | + | + | .. | .. | Pollen ? | Observation; season | Yes | 50% |
| 42. Helen R. | 13 | 10 | Worse in summer | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag +, other pollen ?, foods +, epidermals + | Observation on mold days; improvement with mold desensitization | Yes | 50% |
| 43. Marvin S. | 14 | 8 | June-October; slight perennial | HF&A | + | .. | .. | .. | .. | .. | .. | + | .. | Rag +, grass 0 | Previous pollen treatment gave no results; seasonal observation; good results with mold treatment | Yes | 75% |
| 44. Mrs. N. S. | 24 | 16 | Perennial; worse June-frost | HF | + | .. | .. | .. | .. | .. | .. | .. | .. | Rag +, grass + | Bad on mold days; results improved with mold desensitization | Yes | 75% |
| 45. Kent S. | 5 | 2 | Perennial; worse July-October | HF&A | + | + | .. | .. | .. | .. | .. | .. | .. | Rag ?, grass 0 | Observation during mold days; desensitization results | Yes | 90% |
| 46. Marytine S. | 7 | 4 | Perennial; worse May-November | HF&A | + | + | + | .. | .. | .. | .. | + | .. | Rag ?, grass +, foods + | Observation during mold days; season; aggravation by exposure to musty basement | Yes | 50% |
| 47. Raymond V. | 10 | 4 | Perennial; worse in summer | HF&A | + | + | .. | .. | + | .. | .. | + | + | Rag +, grass + | Observation on mold days; improved with mold treatment | Yes | 90% |
| 48. Mrs. B. W. | 42 | 16 | June-October; slight perennial | HF&A | + | + | .. | .. | .. | .. | .. | .. | .. | Rag +, grass 0 | Season; observation on mold days; poor results with pollen treatment; improved results by addition of mold treatment | Yes | 95% |
| 49. Thomas W. | 10 | 9 | Perennial; worse in October | HF&A | + | + | + | + | + | .. | .. | + | .. | Rag +, grass 0 | Season; observation during season; results of mold treatment | Yes | 75% |
| 50. William Z. | 14 | 3 | May-November | HF | + | .. | .. | .. | .. | .. | .. | + | .. | Rag +, grass + | Symptoms still present 11/9/34; results of mold treatment | Yes | 100% |
| 51. Bobby D. | 8 | 6 | May-frost; slight perennial | HF | + | + | + | .. | .. | .. | .. | + | .. | Rag ?, grass 0 | Observation during season; no results with pollen treatment; good results with mold treatment | Yes | 75% |
| 52. Louis R. | 6 | 3 | Mostly spring and fall | HF&A | + | .. | .. | .. | + | .. | .. | .. | .. | Rag +, others 0 | Observation on mold days; extent of season results of treatment | Yes | 95% |
| 53. Arlee S. | 5 | 3 | Perennial; worse in summer | HF&A | + | + | .. | + | .. | .. | .. | + | + | Pollen 0, foods + | Observation during season; systemic reactions; results of mold treatment | Yes | 75% |
| 54. Herbert K. | 10 | 4 | April-October; slight in winter | HF, slight A | + | .. | .. | .. | .. | .. | .. | + | + | Pollen ?, others 0 | Previous pollen treatment gave no results; worse on mold days; systemic reactions with mold treatment, with some clinical improvement | Yes | 50% |

(Continued from page 1861)

It is necessary to call attention at this point to the fact that the conception of fungi as causes of respiratory allergy is not new. Van Leeuwen [2] of Holland and later Hansen [3] of Germany stressed the importance of nonpathogenic fungi in asthma. Cadham [4] in 1924 described asthma due to rusts. Molds as causes of asthma were not reported in this country until 1930, by Hopkins and his co-workers [5] and by Bernton.[6] As a matter of fact, Blackley,[7] experimenting on his own hay fever about seventy years ago, described a nasal and bronchial reaction having all the earmarks of allergy, on inhaling mold spores. He concluded, however, that this had nothing to do with the cause of hay fever. Had he not chosen to ignore this experiment, our knowledge of that subject would probably not have been dormant for so many years. Since 1930 a number of papers dealing with mold allergy have appeared. Until recently the instances of mold allergy reported were described as more or less medical curiosities; i. e., unusual cases due to exceptional environmental sensitizations, such as a moldy mattress, a musty basement or similar special exposure.

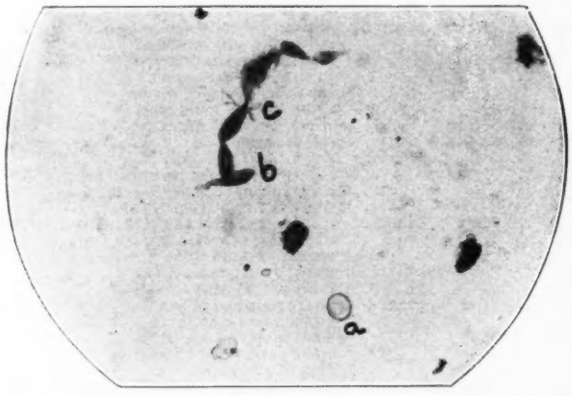


Fig. 1.—Magnified field on glass slide which has been exposed outdoors for pollen counting. Note the pollen and also the fungus spores. *a*, ragweed pollen; *b*, Alternaria spores; *c*, other spores, probably Hormodendrum.

My own point of view has been somewhat different. Since mold spores are present in the outdoor air in greater numbers than in indoor air, as shown by culture plate and slide studies, they are to be regarded as possible causes of allergy in every individual. Thus encouragement was given to make a wider selection of mold extracts for sensitization studies and to conduct such studies in a routine manner on allergic patients. In this way it was possible to uncover a large group of fungus-sensitive patients, thus elevating the fungi to a high place in the scale of important allergens. The results of part of this work have been previously reported.[1]

Later, after the importance of mold allergy in general had become recognized, it became evident that many of these mold-sensitive individuals had seasonal tendencies; i. e., their symptoms were confined to the warm months or aggravated at that time. Our studies [8] on the mold content of the air by means of daily culture plates for almost two years along with our previous slide studies have corroborated our conception of the presence of a seasonal group of hay fever and asthma patients whose symptoms are due to molds. It might be mentioned that in the presentation of fungus-sensitive patients by Bernton,[6] Brown,[9] and Underwood,[10] seasonal aggravation is mentioned in some of the case reports but the possible importance and significance of this is not made apparent.

### CLINICAL OBSERVATIONS AND "SEASONS"

From the records of private patients there have been selected fifty-four who can be classed into a distinct group. These individuals have hay fever or asthma, or both; their symptoms are either entirely confined to the warm months or are aggravated during that period; and it can be demonstrated that fungus spores play a part in the causation of their symptoms. Mold-sensitive patients who have no seasonal variations have not been included in this group. Neither have been included any individuals whose seasonal variations in symptoms could not be definitely ascribed to fungi although they reacted to the latter. It is true that of the fifty-four patients very few are sensitive to fungi alone. It is also admitted that the majority of these individuals had varying degrees of difficulty during the winter months. In this respect, however, this group does not differ materially from the pollen group. Many of those who present themselves for hay fever management have symptoms during the nonpollen months and the majority of them are sensitive to other allergens in addition to the pollen. Nevertheless, these patients are classified primarily as having hay fever. In the same sense there is reason to regard these seasonal mold-sensitive patients as a distinct group.

The evidence for the claim that in this group seasonal hay fever or asthma is caused by sensitivity to the air-borne spores of fungi may now be briefly analyzed:

1. All these patients have positive skin tests to fungi. The extracts are made from pure cultures of atmospheric molds. With the exception of two patients, all positive diagnostic tests were obtained by the scratch technic. Usually reactions to more than one type of mold were obtained. The accompanying table shows the reactions to a few of the most important of these fungi.

2. In most of the instances in which it was tried, a positive Prausnitz-Küstner reaction was obtained. The site of skin of a normal individual injected with the serum of the patient reacted specifically to the suspected mold, while the skin of the other arm failed to react. This demonstrated that the original reaction on the patient was in no sense a nonspecific or "false" reaction.

3. The majority of these patients, on careful inquiry, gave a history of a "season" which either did not agree with their individual pollen reactions or with any pollen season. This is evident when the table is studied. It is to be remembered that most of the cases reported

2. Van Leeuwen, W. S.: Bronchial Asthma in Relation to Climate, Proc. Roy. Soc. Med. **17**: 19, 1924.
3. Hansen, K.: Ueber Schimmelpilz-Asthma, Verhandl. f. inn. Med. Kong. **40**: 204, 1928.
4. Cadham, F. T.: Asthma Due to Grain Rusts, J. A. M. A. **83**: 27 (July 5) 1924.
5. Hopkins, J. G.; Benham, R. W., and Kesten, B. M.: Asthma Due to a Fungus—Alternaria, J. A. M. A. **94**: 6 (Jan. 4) 1930.
6. Bernton, H. S.: Asthma Due to Mold—Aspergillus Fumigatus, J. A. M. A. **95**: 189 (July 19) 1930.
7. Blackley, C. H.: Hay Fever: Its Causes, Treatment and Effective Prevention, Experimental Researches, ed. 2, London, Bailliere, Tindall & Cox, 1880.
8. Feinberg, S. M., and Little, H. T.: Studies on the Relation of Micro-Organisms to Allergy: III. A Year's Survey of Daily Mold Spore Content of the Air, J. Allergy **7**: 149 (Jan.) 1936.
9. Brown, G. T.: Sensitization to Fungi, Ann. Int. Med. **6**: 655 (Nov.) 1932.
10. Underwood, G. R.: The Importance of Fungus as a Cause of Asthma in Nebraska, Nebraska State M. J. **20**: 400 (Oct.) 1935.

here are from around the Chicago area. The important pollen seasons there are usually as follows: trees, April and May; grasses, May 15 to July 15; ragweeds, August 10 to September 20. Thus it is evident, for example, that patient 26, who has hay fever from May to November and whose sole pollen reactor is ragweed, must be sensitive to something else, at least from May to August and from October to November.

4. In most instances there has been opportunity to observe these patients during the summer. Records of their symptoms have been kept and have been compared with daily analysis of the air with respect to pollen and mold spore content. It was definitely established that these individuals are really affected by the mold spores in the air. This was not always easy to do, since the same weather factors tend to influence both the pollen and the mold content in the same direction. However, there is a discrepancy at times which makes clinical interpretation possible. For example, in the summer of 1935 there was practically no pollen in the Chicago air from July 18 to August 10, but the mold spore count was high (fig. 2). These patients had considerable trouble during that period and their clinical sensitivity to fungi could be corroborated. There were a number of other periods when such opportunity for the separation of pollen and mold factors presented itself.

Fig. 2.—Number of pollen grains and spores (Alternaria only) in the air every day during the midsummer of 1935 in Chicago. Solid line, Alternaria spores; broken line, pollen. These figures were obtained by examining the usual surface of the slide (1.8 sq. cm.) used for pollen counting. Note that from about July 15 to August 10 there was practically no pollen. At the same time there were great numbers of fungus spores. Patients who had marked symptoms during that period and milder symptoms earlier could certainly be suspected of mold allergy. (Reproduced by permission of the C. V. Mosby Company, from the Journal of Allergy **7**: 149 [Jan.] 1936.)

5. A number of these patients had been previously treated by others with pollen extracts with either complete or almost complete failure. I also had the experience of treating a few of these patients with pollen, with no improvement.

6. A few patients experienced systemic reactions during the course of mold desensitization.

7. The results of desensitization with mold extracts in about half of this group indicate a specific clinical effect. Many of these sufferers had received pollen treatments previously with little or no benefit.

As a matter of fact, these patients constitute so definite a group that recently it has been possible to surmise the true nature of the case in about three fourths of the instances on the basis of the history, before skin tests were made.

Now what constitutes a mold "season"? Strictly speaking, molds are never out of season. Viable spores have been found in the outside air every day of the year —even when the temperature ranged around 18 degrees below zero. For the 1934-1936 period in Chicago the intervals from December to March showed a minimum number of atmospheric spores. About April there begins a considerable increase in the number. July, August and September are possibly the worst months. The "season" will depend, therefore, on the degree of tolerance of the individual. If his tolerance is fairly high, his symptoms might occur from July to October. If it is low, he may have symptoms from April to December. If as little as two or three spores per cubic yard of air will cause symptoms, the individual will have perennial symptoms. There also seems to be some differences in the prevalence of certain fungi at various times of the year. The particular fungi to which the individual is sensitive may modify his season.

What is said about seasons in this part of the country will not be applicable, of course, to remote parts. Preliminary samplings of the atmosphere from a few distant sections have shown tremendous differences. These studies are continuing in that direction, so that the results may be ultimately of help to physicians and patients in various localities.

Little will be said here about the actual causes of these symptoms—the molds. In this communication the discussion is limited to the nonpathogenic fungi the spores of which contaminate the air. These spores originate from the soil or from the fungi growing on decaying or living higher plants. It has been shown by a number of observers that these spores can be found at very high altitudes and at places very remote from their sources of origin. In our studies thus far [8] we may list the following genera among the most common fungi to which the individual is exposed: Alternaria, Hormodendrum (Cladosporium), Penicillium, Monilia, Aspergillus, Chaetomium, Fusarium, Mucor, Rhizopus, Trichoderma, Cephalothecium and Actinomyces. Yeasts are also quite common. From the standpoint of reactions in the group of patients presented Aspergilli, yeasts and Alternaria appeared to be most important, the latter reacting in practically every case. It is well to mention here that there have been a few patients having all the characteristics of seasonal mold allergy, with negative skin reactions. Apparently there are other fungi or totally different antigens which it may be necessary to learn to recognize.

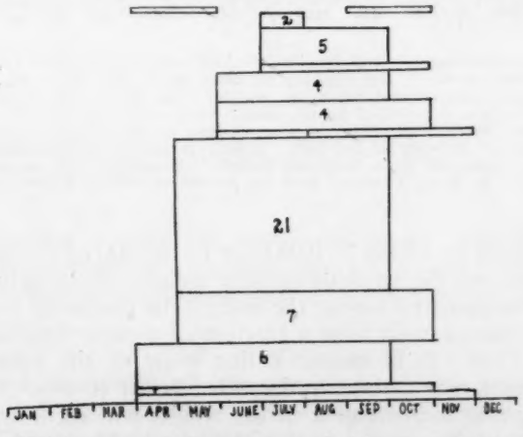


Fig. 3.—Seasons of asthma and hay fever due to fungi in fifty-four patients. The thickness of the blocks and the figures represent the number having symptoms during those particular months. For example, twenty-one patients had their season from May to October. Most of the patients also had slight symptoms during the winter months, but this is not depicted on the chart.

## SPECIFIC TREATMENT

In this group of fifty-four patients with mold hay fever and asthma, twenty-eight were given desensitization therapy with appropriate mold extracts and observed during the season sufficiently so that the

results may be evaluated.[11] Eleven other patients were treated with mold extracts, but their treatment was begun late in the season so that the results cannot be ascertained at the present time. Among the twenty-eight patients who were given a fairly complete course of treatment, some were treated also with pollen. It is to be recalled that many of these patients had been treated with pollen previously with practically no benefit. However, the results of the mold desensitization can be evaluated by observation during the season, according to the indications outlined earlier in the paper. It is possible, therefore, to analyze definitely the effect that mold desensitization had in these patients. The results were as follows:

Eleven patients had from 90 to 100 per cent relief.
Twelve patients had 75 per cent relief.
Four patients had 50 per cent relief.
One patient had no relief.

In this communication it is not feasible to go at length into a discussion of the technic of treatment. In general it may be said that it resembles very closely that of pollen treatment. The beginning doses are usually

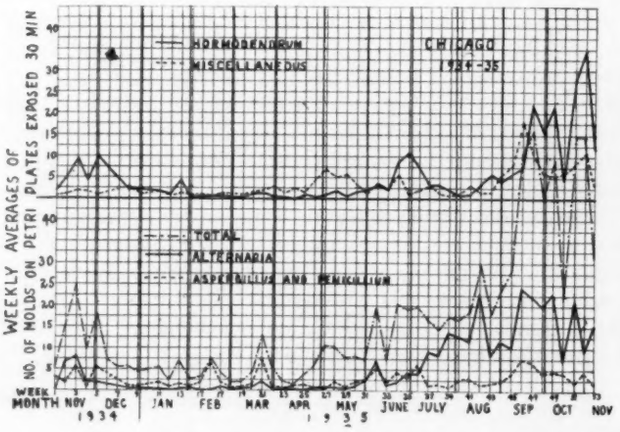


Fig. 4.—The numbers of fungi as obtained from culture plates exposed to the outside air. The numbers represent the colonies on a standard size petri plate exposed for thirty minutes (two plates, fifteen minutes each) daily and averaged by the week. Only several groups of fungi were considered here. Note the preponderance of Alternaria and Hormodendrum in the summer and fall. January to May constitutes almost a closed season for these particular fungi. (Reproduced by permission of the C. V. Mosby Company from the Journal of Allergy 7: 149 [Jan.] 1936.)

about 0.1 cc. of the 1: 10,000 or 1: 100,000 of the mold extract, on the basis of the dry weight of the pellicle. The maximum doses at the end of the course of treatment have usually been a fraction of a cubic centimeter of 1: 100. It is suspected that some of the patients require larger maximum doses for better results. It is likely that improvement in the results will occur when increased knowledge will make it possible to choose more accurately the antigens to be used in the individual case. Systemic reactions have been encountered just as in pollen therapy, indicating the potency of the material and the clinical sensitivity of the individual.

The following case reports will illustrate some of the salient features of this group of patients:

CASE 33.—Aug. 4, 1934, Avis G., a 30 year old assistant in the Department of Pathology, came to the clinic for her regular pollen treatment. On this particular morning she consulted us because of the marked asthma and hay fever from which she had been suffering. Her symptoms were intense. Her record showed that she was receiving almost a cubic centimeter of each of the 1: 33 extracts of ragweed and grasses. On inquiry it was definitely ascertained that no local reactions of any kind resulted from these pollen injections. The early and violent symptoms in spite of such intensive pollen therapy, together with the lack of any local reaction, aroused the suspicion that we were not treating the patient with the causal antigen. The records at the clinic showed negative skin tests to pollen. The previous season she had been given pollen treatments by a competent allergist with no benefit, although it is claimed that positive skin tests to pollen were obtained. Closer inquiry revealed the fact that her hay fever and asthma season was from April to November or December, with slight symptoms the rest of the year. Her maximum suffering was in July, August and September. These symptoms had been present for twenty-one years.

Fungi were suspected as a possible cause of her trouble and tests made showed very marked reactions, particularly with Alternaria and Aspergillus. Pollen reactions were entirely negative. Pollen treatment was discontinued and mold desensitization was begun. Marked local reactions were evident from the start and on two or three occasions sharp attacks of asthma occurred about twenty to thirty minutes after the injection. Treatment was continued through 1935 with at least 75 per cent relief. She says that it was the best summer she had ever had. She was not entirely symptom free, however, and close observation during the summer revealed the fact that her bad days coincided with marked increase in the mold spore content of the air.

CASE 29.—John B., aged 28, was seen July 13, 1934, with a history of typical hay fever symptoms of nine years' duration. His season was from April to October and at no time did he have symptoms in the winter except for one February, when he was in Cuba. August and September were his worst months. The previous summer he had had some sensitization tests, with negative results. Complete pollen tests made by us were entirely negative. This was followed by intradermal and conjunctival tests, which were also negative. Pollen allergy was definitely excluded. The patient was then tested with all possible allergens to which he might be exposed. A positive reaction to tobacco in no way explained the clinical picture. A one plus reaction was obtained to Alternaria by scratch test and a four plus reaction to a 1: 10,000 intradermal solution. This was repeatedly confirmed. He was treated from April 13, 1935, to the fall of that year with an extract of Alternaria. Although the treatments were not very regular and the maximum dose not high, he estimates about 75 per cent improvement. His worst period was toward the end of July, when there was practically no pollen: at the same time it was the maximum period for the Alternaria count.

CASE 39.—Jack M., aged 8 years, was seen July 26, 1934, with the complaint of hay fever of four years' duration. The mother stated that his symptoms occurred from April until frost. A few days prior to his first visit he had had slight asthma. There were no symptoms in winter. Four years ago he had a tonsillectomy-adenoidectomy, which did not relieve his hay fever symptoms. The only member of the family known to have allergy was a great aunt who had asthma.

The nasal mucosa was typically allergic in appearance. The remainder of the physical examination was entirely negative. Cutaneous tests with a comprehensive assortment of allergenic extracts showed strong positive reactions to ragweed pollen, Alternaria and dust. There were no definite reactions to any of the other pollens or other variety of allergens. The fall hay fever could, of course, be explained on the basis of ragweed sensitiveness. The earlier symptoms and the marked symptoms in the latter part of July when practically no pollen was in the air constituted presumptive evidence for the fungi (Alternaria) as a cause. Treatment was begun with ragweed and Alternaria extract, one injection being given in each arm at every visit. His symptoms improved somewhat during the fall of 1934. His treatment was continued perennially. During the spring of 1935 he was improved. In July he began to have some moderate systemic reactions from the injections. By alternating the pollen and mold treatment at each visit it was found that the latter was responsible for the reactions. The dose was then reduced. The greater amount of hay fever symptoms occurred during the latter part of July. He had practically no discomfort the rest of the season. The mother

11. Since this paper was written, fourteen additional patients of this series have been treated with approximately the same results as recorded above.

estimates that there was at least 75 per cent relief. The evidence for the mold etiology in this patient, who is typical of many others, may be summed up as follows: the history of the early "season" without the corresponding pollen reactions; the positive skin tests to fungi; the clinical observation of increased symptoms during the time when the air was heavily contaminated with spores but practically free from pollen; systemic reactions from injections of mold extracts; the satisfactory results following desensitization to these fungi.

SUMMARY

1. The ever present spores of fungi in the air are common causes of respiratory allergy.

2. A great tendency exists for many of the mold-sensitive patients to assume a seasonal character in their symptomatology because of the greater prevalence of mold spores in the warm months.

3. The evidence for the etiologic factor of molds in the group discussed consists of positive skin and passive transfer tests, the history of a "season" which is not in entire conformity with the pollen reactions, the clinical observation of the patients and comparison of their symptoms with reference to daily pollen and mold counts, the failures in pollen treatment, and the good results and a few systemic reactions with mold desensitization.

4. This group constitutes such a definite unit that with some experience most of these patients can be catalogued before sensitization tests are made.

5. Of twenty-eight patients treated by specific mold desensitization and observed during at least one season, twenty-three obtained satisfactory results.

6. The conclusion cannot be escaped that seasonal hay fever and asthma due to molds is a definite and important allergic entity, second in importance only to pollen disease.

185 North Wabash Avenue.

## ABSTRACT OF DISCUSSION

DR. HENRY C. SWEANY, Chicago: Did you ever observe any of your patients leave the environment of some particular mold and become cured spontaneously?

DR. GEORGE R. HERRMANN, Galveston, Texas: Similar studies have been carried out in Galveston by Prince, Selle and others working along these lines. They have observed that there was a difference in the mold content in the atmosphere in connection with variations of the winds. With the drop of the tide and the lowered water level in the swamps about Galveston island the molds multiplied on the exposed water soaked vegetations and then dried. Then certain winds, principally from north easterly directions, whipped them off and carried them over the island and the mold count rose very high. During such times the patients who had apparently become sensitive to the mold antigen responded to the high content of mold. Skin tests were made and desensitization was carried out and reported.

DR. SAMUEL M. FEINBERG, Chicago: I believe your question was whether I have noticed any of these patients having relief from symptoms in other parts of the country.

DR. SWEANY: Going out of the environment of the particular mold.

DR. FEINBERG: Let me explain that these studies were made in an outdoor atmosphere; these do not represent studies on particular environments of particular patients.

DR. SWEANY: What I meant was going to the Pacific Coast.

DR. FEINBERG: I have noticed some variations. For instance, I have one patient now in Tucson who is free at the present time, although she had trouble in Chicago at this time of the year. I have not made any studies of the air in Tucson. I don't know what the difference is. I suspect that there is a difference.

# GIANT CELL BONE TUMOR

## FURTHER OBSERVATIONS ON TREATMENT

CARLETON B. PEIRCE, M.D.
AND
ISADORE LAMPE, M.D.
ANN ARBOR, MICH.

In previous papers, one of us[1] has presented the experience at the University Hospital with giant cell bone tumor during the period from 1923 to 1931. To codify further that experience as a guide in the management of this lesion, the methods used and the results accomplished have been surveyed again in the same group of patients and in an additional number under observation in the department of roentgenology since that time.

The current series reported includes eighteen of the previous group and twenty-two additional cases, a total of forty. Although errors in diagnosis of giant cell bone tumor may be made from the roentgenographic examination, in the large majority of cases the film evidence should be sufficient for diagnosis. In twenty-five of these, biopsy or a surgical specimen has afforded microscopic proof of the roentgen diagnosis. The other sixteen are typical in roentgenographic appearance and are in accord with those proved by histologic examination.

TABLE 1.—*Untreated Cases*

| Case | Age of Patient | Location of Tumor | Reason for No Treatment | Biopsy or Surgical Specimen | Subsequent History |
|---|---|---|---|---|---|
| 1 | 14 | Intertrochanteric area of femur | Treatment refused by parents | + | Subsequent increase in size of tumor; irradiation and surgical treatment elsewhere; microscopic confirmation of diagnosis; no later report |
| 2 | 49 | Seventh rib | Incidental finding; no symptoms | 0 | No report |
| 3 | 29 | Ilium, posterior inferior spine | No symptoms | 0 | No subsequent visit |
| 4 | 14 | Femur, subtrochanteric | Treatment refused by parent | 0 | Progressive increase in size 24 months later; treatment again refused |
| 5 | 3 | Humerus; proximal metaphysis | Treatment refused by parent | 0 | No report |

## METHODS OF TREATMENT

Since the advent of roentgen therapy, some controversy has prevailed between the proponents of surgery and those in favor of irradiation. Others believe that a combination of the two is to be preferred. Surgical attack with chemical cauterization has been utilized with considerable success. Extirpation of the involved area by resection or excision has been advocated.

It will be observed in the tabulated cases (tables 1 to 5 inclusive) that the method of management in our clinic has varied in the same degree as is suggested severally by the articles in the literature. A general

From the Department of Roentgenology, University of Michigan Medical School.

Read before the Section on Radiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Peirce, C. B.: Giant Cell Bone Tumor: A Consideration of the Morphology of This Neoplasm, the Response to Surgical and Radiation Therapy, and Report in Detail of Two Apparently Malignant Cases, Am. J. Roentgenol. **28**: 167-188 (Aug.) 1932; Giant Cell Bone Tumor; Some Considerations of Treatment, Radiology **21**: 348-351 (Oct.) 1933; Giant-Cell Bone Tumor, Am. J. Roentgenol. **30**: 604-606 (Nov.) 1933.

grouping, however, can be made into (1) untreated or those treated (2) by surgical methods plus preoperative and postoperative irradiation, (3) by surgery and postoperative irradiation, (4) by surgery only and (5) by irradiation only.

TABLE 2.—*Preoperative Irradiation, Surgery, Postoperative Irradiation*

| Case | Age | Location of Tumor | Preoperative Irradiation | Character of Surgical Attack | Biopsy or Surgical Specimen | Postoperative Irradiation | Result | Time Interval at Last Report Since Origin of Treatment |
|---|---|---|---|---|---|---|---|---|
| 6 | 34 | Femur, distal | 125 roentgens 2 weeks | Curettage and acriflavine | + | Multiple small doses | Clinically well | 3 years |
| 7 | 36 | Ulna, distal | 200 roentgens ăă 2 ports, 1 mo. | Curettage only | + | Multiple small doses 75-125 roentgens ăă 2 ports monthly for 16 mo. | Excision for increase in size at 12 mos.; good function, no recurrence at 8 yrs. | 8 years |
| 8 | 21 | Fibula, proximal | Single small dose 125 roentgens ăă anterior + posterior, 1 mo. | Excision 4 mos. | + | Multiple small doses 100 roentgens 1 mo. 100 roentgens 3 mo. | No recurrence (now under treatment for pulmonary tuberculosis) | 5½ years |
| 9 | 22 | Tibia, head | 150 roentgens ăă 3 ports, 1 mo.; 150 roentgens, 1 port, 1 week | Curettage and bone chips (lysis of chips and recurrence of tumor at 4 mos.) | + | Multiple large doses 1,850 roentgens in 3 weeks beginning 9 mos. | Amputation 2 years later | 3 years |
| 10 | 24 | Femur, intertrochanteric | 350 roentgens ăă 2 ports, 1 week | Saucerization, bone graft and bone chips | + | Periodic large doses 2 × 400 roentgens monthly for 4 mos. beginning 1 mo. | Persistent cystic areas; good function | 9 mos. |
| 11 | 17 | Tenth rib (malignant change) | 4 × 150 roentgens, 1 port | Excision | + | ..... | Postoperative cardiac death | |
| 12 | 15 | Tibia, proximal (secondarily infected with inguinal adenopathy on admission) | 800 roentgens ăă 4 ports, 1 mo. | Saucerization | + | 600 roentgens ăă 4 ports at 2½ mos., 400 roentgens ăă 4 ports at 6½ mos. | Flexion deformity of knee; equinus position of foot; subcutaneous fibrosis | 3 years |
| 13 | 33 | Tibia, proximal | Periodic, large, 400-600 roentgens ăă 4 ports, monthly for 4 mos. | Excision elsewhere (microscopic diagnosis of giant cell tumor) | + | No report | No report | 9 mos. |

TABLE 3.—*Surgery and Postoperative Irradiation*

| Case | Age | Location of Tumor | Character of Surgical Attack | Biopsy or Surgical Specimen | Irradiation | Result | Time Interval at Last Report Since Origin of Treatment |
|---|---|---|---|---|---|---|---|
| 14 | 11 | Humerus, proximal metaphysis | Curettage only | + | Single large dose, 500 ăă 3 ports | Excellent with bone repair; function good | 4½ years |
| 15 | 15 | Humerus, distal | Curettage and bone chips | + | Periodic large doses, 400-500 roentgens ăă 2 ports × 7, bimonthly | Early resorption of bone chips; later increase in size of tumor; excision at 22 months | 22 months |
| 16 | 11 | Femur, intertrochanteric | Curettage and acriflavine | + | Multiple small doses | Clinically well | 3 years |
| 17 | 4 | Ulna, distal metaphysis | Curettage and acriflavine | + | (Multiple small) treatment elsewhere | Clinically well; anatomic repair | 11 months |
| 18 | 15 | Ulna, distal metaphysis | Curettage and phenol | + | Multiple small doses | Clinically well | 28 months |
| 19 | 27 | Thoracic vertebra II | Laminectomy | + | Treated elsewhere; multiple small doses | No disability; returned to work | 3 years |
| 20 | 25 | Thoracic vertebra XII | Laminectomy | + | Periodic large doses, 600 roentgens ăă 2 ports × 2 three month intervals | Partial residual palsy due to permanent damage to cord before admission; no increase in size; recalcification; good functional result | 3 years |
| 21 | 38 | Humerus, proximal ⅓ | Operation elsewhere twice; apparent ultimate resection, secondary infection | + | X-ray saturation series elsewhere | Gross defect in humerus; no apparent tumor; disability | 21 months |
| 22 | 42 | Tibial head | Operation elsewhere; secondary infection | + | X-ray and radium elsewhere; data not obtainable | Persistent tumor with osteomyelitis; gross defect in skin | 3 years |

### UNTREATED CASES

In the entire series of forty patients, five were not treated for the giant cell tumors found (table 1). The parents of three of these refused treatment of any type, one later permitting the child to be treated by surgery and irradiation elsewhere as the symptoms increased. Two cases presented the tumor as an incidental finding without symptoms.

### TREATED CASES

In any evaluation of the result of treatment, several factors relative to the condition at the time of origin of treatment must be carefully weighed; namely, the extent of the lesion, the location in an essential skeletal part or weight bearing area, the character of previous treatment not subject to the observer's control, or secondary infection. Without fairly complete information on these items an attempt to evaluate results will be fruitless, regardless of the number of cases in the series.

The number of individuals in each group of this series is small; hence percentage values are not

markedly significant. The major criteria must be the effect on the lesion in the nature of cessation of further growth, degree of bone repair, impairment or improvement of function and either ultimate retention of the affected part with safety or its excision.

TABLE 4.—*Surgical Treatment Only*

| Case | Age | Location of Tumor | Character of Surgical Attack | Biopsy or Surgical Specimen | Result | Time Interval at Last Report Since Origin of Treatment |
|---|---|---|---|---|---|---|
| 23 | 18 | Fibula, head | Excision | + | No report after discharge | Clinically well 1 month |
| 24 | 7 | Femur, intertrochanteric | Curettage and bone chips | + | Persistent cystic areas; minimal improvement; no disability | 3 years |
| 25 | 13 | Femur, intertrochanteric | Curettage and bone chips | + | Persistent cystic areas; good functional result | 2 years |
| 26 | 14 | Femur, distal metaphysis | Curettage, electrocautery, bone chips and graft | + | Persistent cystic areas; apparent repair in other areas | 26 months |

In this series we shall speak of "excision" as the removal of the affected part of the bone *en masse*, "curettage" or "saucerization" as the removal of the affected portion of the bone by a curet or similar instrument, the unaffected shell being left. In general, "excision" is to be regarded as unfavorable, in that it removes a portion of the supportive framework of an extremity and is used relatively as a means of last resort to eradicate the tumor. We admit that excision may be the method of choice in certain cases but do not feel that it is necessary in the majority. In radiation therapy "multiple small treatments" commonly means from 75 to 125 roentgens through several ports repeatedly over a certain length of time; "periodic large doses" means from 300 to 600 roentgens through several ports repeated at longer intervals, the x-radiation being generated at 140 or 200 kilovolt peak.

*Surgery with Preoperative and Postoperative Irradiation* (table 2).—Eight cases were subjected to preoperative irradiation. In but one of these can the preoperative irradiation be considered to have had an opportunity to become effective before surgical intervention.

Of the group only one (case 6) may be considered to have a satisfactory result. The preoperative irradiation was minimal and was given but two weeks before curettage and chemical cauterization. Patient 10, with an intertrochanteric involvement of the femur, received preoperative irradiation only one week before saucerization. This cannot be considered a marked factor in the result. Both patients received methodical postoperative irradiation, one with multiple small doses, one with periodic large doses. The functional result in both has been good.

Patient 12 had been secondarily infected and presented inguinal adenopathy on admission. In this case large periodic irradiation (malignant change suspected) has contributed, we believe, to scar tissue contraction about the knee, which, coupled with the osteomyelitis present on admission, has not permitted a satisfactory result.

The other five have resulted in excision or amputation, one showing malignant change (case 11).

In this group, therefore, the methods of management have varied widely, and the results cannot be considered to favor either irradiation or surgery.

TABLE 5.—*Treatment with X-Rays Only*

| Case | Age | Location of Tumor | Character of Radiation Therapy | Biopsy or Surgical Specimen | Result | Interval of Last Report Since Origin of Treatment |
|---|---|---|---|---|---|---|
| | | | **Multiple Small Doses** | | | |
| 27 | 8 | Femur, intertrochanteric | Multiple small doses..... | 0 | Improved calcification; no disability; no growth of tumor | 11 months |
| 28 | 37 | Radius, distal | Multiple small doses..... | 0 | Clinically well; ossification of tumor | 3 years |
| 29 | 21 | Radius, distal | Multiple small doses (75-125 roentgens biweekly to bimonthly over a long period) | 0 | Clinically well; ossification of tumor | 5 years |
| 30 | 18 | Thoracic vertebra XII | Multiple small doses..... | + | Clinically well; ossification of tumor | 8 years |
| 31 | 16 | Fibula, head | Multiple small doses..... | 0 | Clinically well; ossification of tumor | 11 years |
| | | | **Periodic Large Doses** | | | |
| 32 | 4 | Humerus proximal metaphysis | 200-250 roentgens āā 3 ports monthly to bimonthly × 7 | 0 | Progressive ossification; no disability; clinically well | 2 years |
| 33 | 7 | Humerus proximal metaphysis | 350 roentgens āā 3 ports bimonthly × 3 | 0 | Progressive ossification; clinically well | 12 months |
| 34 | 11 | Femur, intertrochanteric | 350-500 roentgens āā 3 ports bimonthly × 3 | 0 | Increased calcification, loss of pain and limp; clinically well | 7 months |
| 35 | 18 | Femur, distal | 500-600 roentgens āā 4 ports bimonthly × 4 | 0 | Ossification in tumor; loss of pain; peroneal palsy | 20 months |
| 36 | 31 | Femur, distal | 400-500 roentgens āā 4 ports 1-3 months intervals × 4 | 0 | No change in tumor; recurrence of pain last visit | 3 years |
| 37 | 44 | Thoracic vertebra X | 500 roentgens āā 2 ports monthly for 4 months | 0 | Moderate ossification; loss of symptoms; clinically well | 17 months |
| 38 | 13 | Lumbar vertebra V | 650 roentgens āā 3 ports monthly for 4 months | 0 | Progressive ossification; loss of symptoms; clinically well | 22 months |
| 13 | 33 | Tibia, head | 400-600 roentgens āā 4 ports bimonthly × 4 | + | Excision elsewhere 6 weeks after last dose | 9 months |
| | | | **Palliative Treatment** | | | |
| 39 | 7 | Humerus, proximal metaphysis | 400 roentgens āā 3 ports | 0 | No subsequent report | |
| 40 | 45 | Ischium and ilium | 3 × 150 roentgens āā anterior and posterior right pelvis; 4 × 75 roentgens chest (metastasis) | + | Relief of pain in pelvis; death 8 months later | |

*Surgery and Postoperative Irradiation* (table 3).—The nine cases in this group include two patients who had been operated on and subjected elsewhere to irradiation with x-rays or irradiation with x-rays and radium. One of these patients no longer has a tumor but has lost the proximal third of the humerus with a resultant flail shoulder. The other patient still has some tumor in the tibia with secondary infection. They have not been subjected to irradiation in this department. They may be considered as unfortunate examples of the result of multiple modes of attack and of the effect of secondary infection.

TABLE 6.—*Summary of Results of Treatment*

| Method of Treatment | Total Number of Cases | Results: Satisfactory | Unsatisfactory | Palliative Only | Unknown |
|---|---|---|---|---|---|
| (*a*) Untreated | 5 | .. | 3 | .. | 2 |
| (*b*) Surgery with preoperative and postoperative irradiation | 8 | 2 | 6 | .. | .. |
| Curettage or saucerization | (2) | | (2) | | |
| Curettage and chemical cauterization | (1) | (1) | | | |
| Curettage and bone chips or graft | (2) | (1) | (1) | | |
| Excision | (3) | | (3) | | |
| (*c*) Surgery with postoperative irradiation | 9 | 6 | 3 | .. | .. |
| Curettage | (1) | (1) | | | |
| Curettage and chemical cauterization | (3) | (3) | | | |
| Curettage and bone chips | (1) | | (1) | | |
| Laminectomy | (2) | (2) | | | |
| Operated and treated elsewhere | (2) | | (2) | | |
| (*d*) Surgery only | 4 | 3 | 1 | .. | .. |
| Curettage and bone chips | (2) | (2) | | | |
| Curettage, electrocautery, chips and graft | (1) | (1) | | | |
| Primary excision | (1) | | (1) | | |
| (*e*) Irradiation only | 15 | 10 | 2 | 1 | 2 |
| Multiple small doses | (5) | (5) | | | |
| Periodic large doses | (8) | (5) | (2) | | (1) |
| Palliative | (2) | | | (1) | (1) |
| Total | 41 | 21 | 15 | 1 | 4 |

A third (case 15) showed an early resorption of bone chips introduced at the time of curettage and later a recurrence in activity and growth of the tumor while still under roentgen therapy, requiring subsequent excision.

The remaining six are regarded as showing good to excellent results. (These constitute, in analysis, 86 per cent of their group, since the first two discussed should not be included in an evaluation of this method of treatment.)

Five of the patients are clinically well from eleven months to four and one-half years since the origin of treatment. The sixth patient (20) had considerable cord damage on admission, and some residuum must be expected. The functional and symptomatic result is good.

Four of these six patients received multiple small doses (from 75 to 125 roentgens, biweekly or bimonthly) over a considerable length of time, one a single large treatment (500 roentgens each through three ports), and the sixth periodic large amounts (600 roentgens each through two ports at two three-month intervals). It should further be observed that in three of these favorable cases a chemical cauterant was employed by the surgeon in addition to the curettage of the evident tumor area.

*Surgery Only* (table 4).—One of the four patients who received surgery only was subjected to a primary excision. This was a patient of low mental development in whom excision of the fibular head was considered the method of choice.

The other three have shown a good result with curettage and bone chips, or with curettage and electrocauterization followed by bone chips and graft. All three show persistent cystic areas in the operative field. The functional result has been good.

*X-Irradiation Only* (table 5).—The group that received irradiation includes only fifteen cases. From this total two patients must be deleted, one to whom radiation was given only as a palliative measure for relief of pain and in whom the ischial tumor showed malignant change after having been present for fourteen years (case 40), and the second for lack of further information (case 39).

Patient 13 was subjected to an excision elsewhere, six weeks after the last irradiation. The reason for this surgical intervention is unknown.

The remaining twelve have shown good results with loss of symptoms, cessation of growth of the tumor, and recalcification in the tumor area. One (patient 36) complained of recurrence of pain at the last visit without x-ray evidence of change in the tumor. Another (patient 35) has some subcutaneous fibrosis in the popliteal area and a peroneal palsy. The contributory effect of the larger doses of radiation as a factor in the production of fibrosis in the deeper connective tissues in this case may be questioned in view of the fact that the postirradiation skin changes are minimal.

We may then consider that ten of the twelve subjected to radiation treatment only have shown good results (83.3 per cent of the immediate group).

It is of interest that half of these ten have received multiple small doses of from 75 to 125 roentgens frequently over a period of time, and the other half periodic large doses at less frequent intervals. In a comparable elapsed time, no significant variation in response has been observed. Under both methods the symptoms have disappeared, growth of the tumor has ceased, and moderate ossification within the tumor has ensued. On the other hand, the two patients in this group who have shown unfavorable results had received periodic large doses of radiation. These may represent the normal morbidity rather than demonstrate a specific character of response.

TABLE 7.—*Summary (Corrected for Extraneous Factors)*

| Method of Treatment | Total Number of Cases | Results: Satisfactory | Unsatisfactory | Discarded Because of Extraneous Factors |
|---|---|---|---|---|
| Surgery with preoperative and postoperative irradiation | 8 (5) | 2 (40%) | 3 (60%) | 3 |
| Surgery with postoperative irradiation | 9 (7) | 6 (85%) | 1 (15%) | 2 |
| Surgery only | 4 (3) | 3 (100%) | ..... | 1 |
| Irradiation only | 15 | 10 (83.3%) | 2 (16.7%) | 3 |
| | (27) | 21 (77.7%) | | |

Logically, therefore, we cannot hold a particular brief for either method of irradiation. It is our opinion that the initial reaction of apparent lysis is more marked in the patients subjected to the larger doses. Further, the experience with one patient suggests the inadvisability of large doses of radiation because of possible damage to the deeper connective tissue.

### COMMENT

A recapitulation of the results obtained by these several methods, which reflects in a measure the general lack of uniformity in treatment of giant cell bone tumors, is shown in table 6.

However, with the several cases deleted for the causes discussed in each of these groups, the distribution shifts somewhat as indicated in table 7.

With such an analysis it is evident that with thorough curettage, surgery alone is effective in the control of this tumorous lesion of bone. Contrary to our previously expressed belief, adequate curettage with or without cauterization has been as effective as curettage with irradiation.

There are those cases in which the location of the tumor, the age or physical condition of the patient, or the loss of occupational time incident on surgical attack are real factors in the life of the patient. In these, irradiation offers symptomatic relief and anatomic improvement.

Further, irradiation alone offers as much for the control or cure of giant cell tumor as either of the other methods. The comparison of surgery alone as of 100 per cent is a fallacy in so small a group of cases.

As to the method of irradiation, our immediate tabulation suggests little choice. The character of the response of giant cell tumor to irradiation continues to substantiate the belief that the growth restraint induced is specific for the giant cell, and that giant cell tumor is essentially not a true neoplasm. Hence large or massive doses are theoretically of less value than smaller and more frequent amounts of radiation and may tend to be more irritating to the normal connective tissue elements.

Cessation of increase in size of lesion and disappearance of symptoms should be considered as an indication of favorable response, although reparative changes in the involved bone are not apparent for some time.

### CONCLUSION

1. Lack of uniformity in the treatment of giant cell tumor by combined surgical and radiation methods defeats any attempt at satisfactory comparative analysis.
2. Preoperative irradiation has been permitted little opportunity for effect and has been urged on the radiologist largely in those cases which are unfavorable at the outset.
3. Secondary infection subsequent to primary surgical intervention or biopsy offers definite obstruction to improvement by irradiation.
4. Adequate curettage has induced good functional results in anatomically accessible areas.
5. Either adequate treatment with x-rays or adequate surgical intervention offers as much as a combination of the two.
6. Conservative treatment with x-rays will afford symptomatic relief and induce anatomic repair.

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**"Acid and Alkali Forming Foods."**—The scientific evidence indicates, therefore, that the question of acid and alkali forming foods is a negligible problem in human dietetics. "It is still an open question," wrote Sherman (in 1932), "whether the acid base balance of the mineral elements of the diet is or is not of practical significance in human nutrition." Evidence showing the relative unimportance of the effects of acid ash and alkaline ash foods has been ably summarized in the Report of the Committee on Nutritional Problems of the American Public Health Association for 1935-1936.—Tobey, J. A.: The Question of Acid and Alkali Forming Foods, *Am. J. Pub. Health* **26**:1113 (Nov.) 1936.

# MULTIPLE POLYPOSIS OF COLON

## FAMILIAL FACTOR AND MALIGNANT TENDENCY

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Multiple polyposis in recent years has been recognized as a distinct disease. This, together with the growing knowledge of the hereditary factor and high percentage of deaths from malignant degeneration, has been responsible for general interest in its study.

After diagnosing a case of multiple polyposis I have undertaken to locate and examine all the members of that family group in an effort to determine how many of them were similarly afflicted. This paper represents the result. It is not, however, intended as an exhaustive review of the subject.

Multiple polyposis, or adenomas, of the colon can, following the classification of Erdmann and Morris,[1] well be divided into two classes: the first, the acquired or adult type, the result of some form of irritation, and the second, the adolescent (congenital, disseminated type) characterized by familial tendency and probably, in some cases at least, congenital.

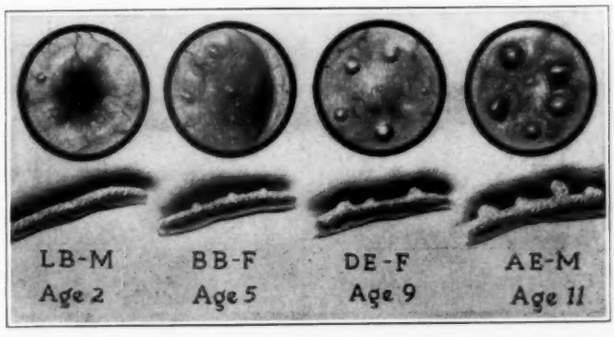


Fig. 1.—Comparative size of adenomas in four children of one family, aged 2, 5, 9 and 11. As there is an average difference of two and three-fourths years in the ages and so nearly a like amount of growth for each period, it suggests congenital origin in the 2 year old and hence in all.

The acquired type is found when there is chronic irritation. Such polypi formed from the loosened edges of ulcers are often seen as a late stage of ulcerative colitis, hyperplastic tuberculosis and stricture.

Polypi of this type are irregular in size and shape, are scattered, and are few in number as compared with the other type. The diagnosis of the irritation that preceded them and the fact that they occur later in life differentiate this class from the adolescent type.

Only the adolescent type is being considered in this paper. It is observed in infancy and early life and may involve members of several generations of the same family. The distribution of the polypi is throughout the entire colon, and they may displace the normal mucosa. There is a history of frequent bowel movements, from two to six a day, often for a number of years without any apparent ill effect, but sooner or later there is blood and mucus in the stools with increased frequency and abdominal pains, due to an exaggeration of the disease itself or to a superimposed malignant condition.

Both types predispose to malignant degeneration, the incidence varying from 40 per cent upward. In my series it is 33⅓ per cent (table 5).

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Read before the Section on Gastro-Enterology and Proctology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Erdmann, J. F., and Morris, J. H.: Surg., Gynec. & Obst. **40**: 460 (April) 1925.

### DIAGNOSIS

By means of a digital examination it is possible to gain the first impression that the case is one of multiple polyposis. As the adenomas usually appear first in the pelvic colon and rectum, they can readily be seen through the sigmoidoscope. With the more general use of this instrument and x-rays the diagnosis of such cases has become more common, whereas previously

Fig. 2 (J. C., group A, aged 21).—Characteristic mottling due to adenomas protruding into lumen and preventing uniform distribution of the opaque clysma.

discovery was made only at autopsy or on excision of a portion of the colon for some other condition.

Despite the diagnosis of polyposis with the sigmoidoscope and x-rays, as routine procedures of the careful diagnostician, still many such cases are treated as colitis and most are diagnosed only after the appearance of the more urgent symptoms consequent on malignant change.

If a case of polyposis or polyposis with malignant change is discovered, early examination of other members of the family group may locate additional cases before serious symptoms arise.

Immature adenomas, in the form of tiny spots, 1 cm. in diameter and just ready to break through the apparently normal mucosa, can usually be found between the visible polypi. (In L. B. in figure 1 an immature adenoma is shown as a light spot near the bottom and slightly to the right.) This condition exists chiefly in those under 16 years of age. These are described by Fansler as "simply a little bulge of the mucosa as though there were a foreign body lying under it." Such forms must be searched for in infants and younger children, for only in this way is it possible to make an early diagnosis. My experience is that, with a clean mucosa and a light at the distal end of the sigmoidoscope, it is possible to focus it so as to throw its rays across the mucosa and thereby bring into relief these very small forms. The magnifying lens attachment for the sigmoidoscope may be helpful but is rarely needed. All suspicious polypi should be removed for pathologic study.

The x-rays are necessary for making a diagnosis of polypi higher than the limits of sigmoidoscopic inspection. For this condition, double contrast mediums, a barium sulfate enema, followed after its expulsion by air inflation, unmistakably constitute the most efficient method for demonstration of adenomas. Although polypi are usually most abundant in the lower part of the bowel, the roentgenogram would seem to indicate, in some cases at least, that the greatest number are in the proximal portion of the colon. A roentgenogram should be made in every case because of the possibility of carcinoma.

This study was further prompted by the hope that, with earlier diagnoses, some treatment might be found, before malignant change took place, to save some of these unfortunates from an early death.

### GROUP STUDY

With the familial tendency in mind, five cases presenting polyposis were selected for group study but in only two was it possible to get in contact with relatives in sufficient number to warrant a report. Some subjects who may be afflicted refused examination; others, examined early in the period of study, which began in 1930, may since have developed the disease, so that the figures I am to present may fall short of the actual number. Some were afraid to have an examination, stating that if they had the disease and knew it they would have that much more to worry about. They defended their stand by referring to some of their relatives who died even after a diagnosis had been made. Another argument against examination was that they did not want their children to bear the stigma that would result from their companions knowing of their affliction.

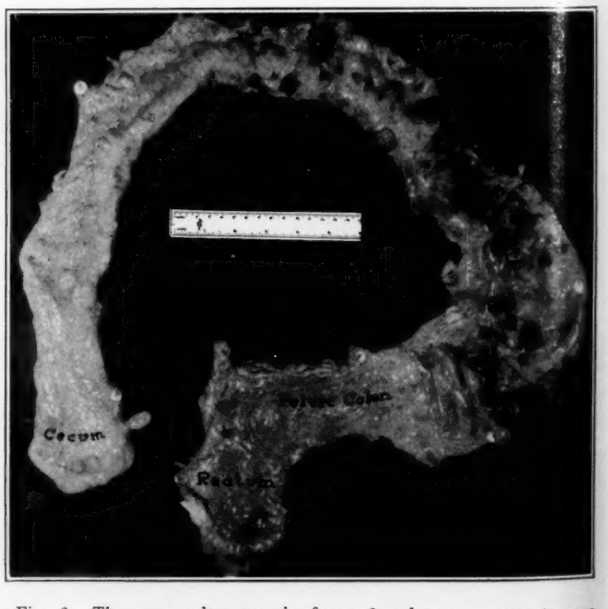



Fig. 3.—The same colon seen in figure 2; adenomas cecum to anus. Malignant degeneration of adenoma near splenic flexure was cause of death. Note absence of adenomas in pelvic colon and rectum, removed through the sigmoidoscope in preparation for colectomy.

### GROUP A

In the first group, which I shall henceforth speak of as group A, all were Italians; some spoke no English and were suspicious of the motive behind my desire to make an examination, so refused it. This group lived within 50 miles of Buffalo, some in Canada and the rest in the United States, but, on account of the depression and unemployment, few had the means to come

for examination; neither could they afford to pay for hospitalization. Some of them, however, were most cooperative and helpful in getting the others in for examination.

Individuals and hospital records were examined and in one case a history was obtained from relatives. In this way three generations were covered.

The father of a family of six children, who came to America, died at the age of 47 in Italy of "bowel trouble." His children said he had continuous loose stools preceding death, pointing strongly toward polyposis, carcinoma or both. He alone represented the first generation. His children represented the second generation of the group (table 1).

The first seen in group A was J. C., one of the six children, a woman, aged 21, who had multiple polyposis and died of a carcinoma near the splenic flexure. With this one as a nucleus the study of the group began. Three others in this family of six had polyposis. One, a brother, dying with rectal carcinoma, a sister probably with carcinoma and the third, a brother, is still alive. A sister died at 30 of rectal carcinoma, and one is still alive, free of the disease.

There were eight children in the third generation, two of whom have multiple polyposis.

Of fifteen persons in group A, I examined thirteen. The hospital records of another, who had died, were studied and a history of another was obtained from relatives. Six of the group, aged 10, 16, 20, 21, 38 and 42, four males and two females, had polyposis. Two of them died of rectal carcinoma at the ages of 24 and 44 and a third died with all the symptoms of carcinoma, while three, aged 10, 16 and 20, are still alive (table 1).

TABLE 1.—*Incidence of Multiple Polyposis and Carcinoma in Family Group A*

Group A: N. F.-♂; 47; ???; Died 47

| S.F. | F.M. | A.C. | M.P. | J.C. | S.F. |
|---|---|---|---|---|---|
| ♂ | ♀ | ♀ | ♀ | ♀ | ♂ |
| 42 | 38 | 30 | 27 | 21 | 20 |
| (MP)-C | (MP) | C | | (MP)-C | (MP) |
| Died 44 | Died 41 | Died 30 | | Died 24 | |

| N.F. | F.F. | E.F. | F.M. | G.C. | S.C. | L.C. | R.A.C. |
|---|---|---|---|---|---|---|---|
| ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♀ |
| 10 | 8 | 6 | 16 | 11 | 7 | 5 | 2 |
| (MP) | | | (MP) | | | | |

Key to tables 1 and 3: S. F. ♂ or ♀, initials, sex; 42, patient's age at examination or on records; (MP)-C, multiple polyposis and carcinoma; Died 44, age at death; (MP), multiple polyposis; ?, needs watching; ???, history; M.P.?, Carc.? or both?

TABLE 2.—*Clinical Histories in Group A*

| | |
|---|---|
| 40% had polyposis | |
| 33⅓% of the M.P. patients died of carcinoma | |
| Members of family group | 15 |
| Examined | 13 |
| Dead, records studied | 1 |
| Dead, history from family | 1 |
| Multiple polyposis | 6 |
| Ages: 10, 16, 20, 21, 38, 42 | |
| Average age: 24.5 | |
| Males | 4 |
| Females | 2 |
| Of these: | |
| Dead, carcinoma, ages: 24, 44 | 2 |
| Dead, clinical diagnosis carcinoma, age 41 | 1 |
| Alive, ages 10, 16, 20 | 3 |

GROUP B

The second family group, which I shall refer to as group B, were English speaking, representing three generations. They lived from 80 to 300 miles from Buffalo, in widely scattered areas on farms and in villages, and, like the previous group, practically all were indigent, so that it was necessary to drive hundreds of miles to search for them. It took about two years, much correspondence and solicitation by friends and other relatives in order to make the contacts. When found, it took time and often repeated trips to persuade some of them to consent to an examination. The first examinations had to be made, usually, without the slightest preparation of the persons to be examined, in their homes and always under most unsatisfactory conditions. Often subsequent examinations, as necessary, revealed polyposis where lack of preparation was responsible for failure previously.

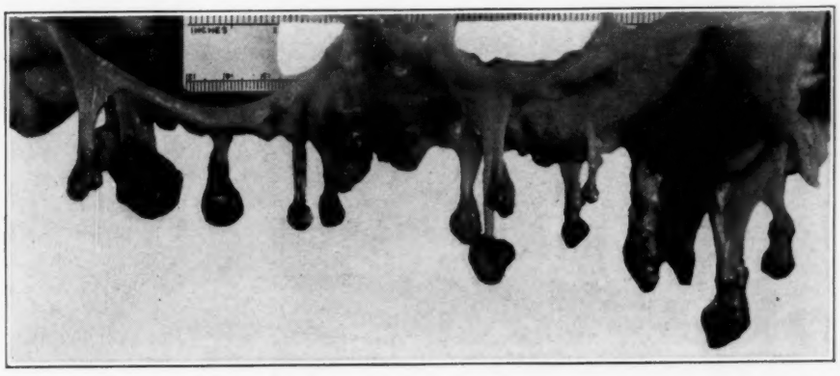


Fig. 4.—Section of the colon seen in figure 3. The polypi are from 3 to 5 cm. in diameter with pedicles up to 3 cm. in length.

Histories of any value, except in a few cases, were unobtainable, as parents of some of the children were dead or uninterested, and some of the children were being cared for by a welfare organization or by relatives who were scarcely able to care for themselves.

None, with two exceptions, could even afford to come to Buffalo for examination, and none could pay for hospitalization, so it was necessary to go for them and return them to their homes when through with them.

It took two years to locate twenty-eight members of this group. I examined twenty-five. Hospital records of three were studied and two of these had polyposis and carcinoma, while the third had one or both diseases.

A man, representing the first generation, died of polyposis and carcinoma of the rectum (table 3).

His seven children, three of whom are dead, represented the second generation. One of these three, M. B., a woman, the first seen in this group, had polyposis and died of carcinoma of the rectum forty-one days later, at the age of 29. Another, a woman, E. J. H., died of polyposis and carcinoma at the age of 21. A male died of "bowel trouble" suggestive of the two diseases.

In the third generation of twenty children, six have polyposis. At the time of their examination the other fourteen were free of the disease.

Nine members of group B, aged 2, 5, 9, 11, 11, 13, 21, 29 and 44, five males and four females, had polyposis. A tenth in all probability had it. Three of the members with polyposis, aged 21, 29 and 44, died of rectal carcinoma and six are still alive (tables 3 and 4).

Of the forty-three persons composing the two groups fifteen, or 37.7 per cent, had polyposis; five of these,

or 33⅓ per cent, have died of carcinoma. Two were males and three females. There are two, not included in these figures, who died of "bowel trouble" and a third of rectal carcinoma. If these three could be properly assigned, there is little doubt that the percentage of both the polyposis cases and deaths in cases of polyposis from carcinoma would be raised (table 5).

Fig. 5 (A. E., boy, aged 11, fig. 1, table 3).—Mottling of multiple polyposis.

The frequency of occurrence of multiple polyposis of the adolescent type, among the residents of a community, cannot be estimated with any degree of accuracy.

The number known at any one time could be increased if, when carcinoma of the colon is diagnosed, a careful study with the sigmoidoscope and the x-rays should be made for associated adenomas, both above and below the growth. If the case should prove to be one of polyposis, an exhaustive search of the relatives would no doubt reveal many more such cases and a reexamination every five years would add new cases, while other members would have died of carcinoma in the meantime.

Doering, as quoted by Dukes,[2] in a review of forty cases in his tabulation of ages proves that the disease is not congenital.

The age incidence in my study of fifteen cases is shown in table 7.

The youngest patient in my series is 2 years of age. He has two sisters aged 5 and 9 and a brother aged 11. A study of the adenomas in these four children, whose ages average two and three-fourths years apart, shows so nearly a similar amount of growth for each period that, in order for the adenomas to attain the size found in the 2 year old child, in my opinion they must have been present at birth and hence congenital. The same reasoning would apply in placing the three older children in the congenital class. In order, however, to prove conclusively that the disease is congenital, an examination would have to be made at birth. The artist has made very faithful reproductions illustrating the sigmoidoscopic pictures of the adenomas in these four children (fig. 1).

2. Dukes, Cuthbert: Cancer Rev. 5: 241 (April) 1930.

The mother, M. B., of the four children just mentioned, all of whom had polyposis, was married twice, having two children by each husband. There was no history of the disease in either of her husbands or their families.

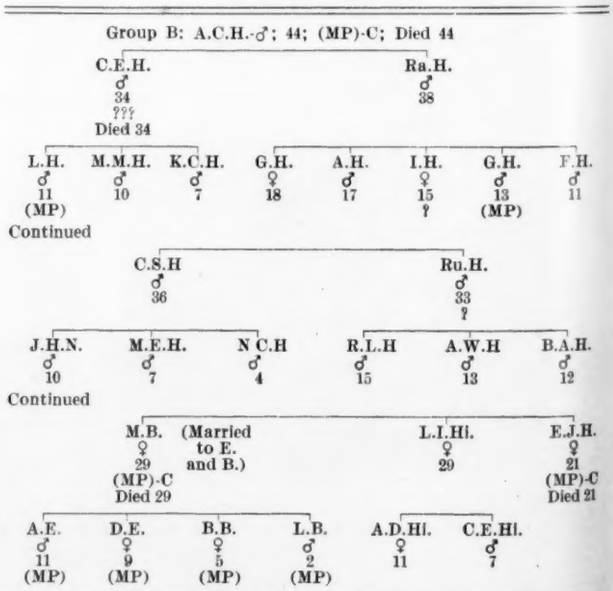
In my series of fifteen polyposis cases there were nine males and six females, a ratio of 3 to 2. Tables 1 and 3 illustrate well the hereditary or familial factor. There seems to be no fixed rule as to the transmission from one sex to the other.

## TREATMENT

After I found the cases of polyposis, some asked what I was going to do about it. At once I realized that I had brought on myself a great responsibility. The problem was not easy to solve for several reasons. One was the difficulty of caring for people living so far from Buffalo and who were unable to pay for transportation or hospitalization even after they got there. The welfare organization refused to help, because many of the afflicted were apparently not ill and because they were being moved out of their own locality. Some refused surgical or any other form of treatment. As six of the patients with polyposis were 11 years of age or under, the question arose as to the advisability of doing surgery, necessarily radical.

In selected cases, because of the malignant tendency of polyposis, the best treatment is, without doubt, surgical, such as an ileostomy followed by excision of the whole colon, or the anastomosis of the distal end of the ileum into the lower pelvic colon at a point below which the polypi have been completely removed by fulguration (fig. 3). The colon, from the cecum to the point of anastomosis, is then excised.

TABLE 3.—*Incidence of Multiple Polyposis and Carcinoma in Family Group B*




The difficulty of deciding whether a part or all of the colon is involved and just how much to remove, together with the technical difficulties of the operation, the uncertainty of complete removal and the dangers to the patient make a less radical procedure desirable, but, unfortunately, a satisfactory one has not been found.

Some success has been reported from the use of roentgen rays.[3] This treatment was also suggested by some features of success attained with it in one of my patients (A. K.) in whom the adenomas for 10 inches up were so close together that there was almost no normal mucosa visible. Roentgenograms showed the whole colon to be involved. He received two courses of treatments, totaling 5,500 roentgens. The adenomas turned dark red and black and disappeared. Later the patient died of an infected wound following an operation by a local surgeon for carcinoma, which was not found. One can only conjecture what might have been the result had no surgery been done.

TABLE 4.—*Clinical Histories in Group B*

| | |
|---|---|
| 32.14% had polyposis | |
| 33⅓% of the M.P. patients died of carcinoma | |
| Members of family group | 28 |
| Examined | 25 |
| Dead, records studied | 3 |
| Multiple polyposis | 9 |
| Ages: 2, 5, 9, 11, 11, 13, 21, 29, 44 | |
| Average age: 16.1 | |
| Males | 5 |
| Females | 4 |
| Of these: | |
| Dead, carcinoma, ages: 21, 29, 44 | 3 |
| Alive, ages: 2, 5, 9, 11, 11, 13 | 6 |

TABLE 5.—*Summary of Groups A and B*

| | |
|---|---|
| 37.7% had polyposis | |
| 33⅓% of the M.P. patients died of carcinoma | |
| Members of the two family groups | 43 |
| Examined | 38 |
| Dead, records studied | 4 |
| Dead, history from family | 1 |
| Multiple polyposis | 15 |
| Ages: 2, 5, 9, 10, 11, 11, 13, 16, 20, 21, 21, 29, 38, 42, 44 | |
| Average age: 19.5 | |
| Males | 9 |
| Females | 6 |
| Of these: | |
| Dead, carcinoma, ages: 21, 24, 29, 44, 44 | 5 |
| Dead, suspected carcinoma, age 41 | 1 |
| Alive, ages: 2, 5, 9, 10, 11, 11, 13, 16, 20 | 9 |

TABLE 6.—*Doering's Review of Forty Cases*

| Years | Cases |
|---|---|
| 1–10 | 2 |
| 10–20 | 10 |
| 20–30 | 10 |
| 30–40 | 13 |
| 40–50 | 2 |
| 50–60 | 2 |
| 60–70 | 1 |

Of the fifteen patients with polyposis, six are now dead. Two of them, A. C. H. and E. J. H., died of carcinoma of the rectum before my study began. One, M. B., died of carcinoma of the rectum forty-one days after diagnosis. S. F. died of carcinoma of the rectum, and F. M. died with the symptoms of carcinoma. Another, J. C., died of carcinoma of the splenic flexure.

Irradiation was employed for palliation in only three of the six patients who were very ill (S. F., F. M. and J. C.). The latter case (J. C., group A) was one of special interest:

A woman, aged 21, seen Oct. 30, 1930, had had abdominal cramps since the birth of her 6 year old child and for three months hourly stools with bloody mucus.

Many adenomas were seen in the rectum and pelvic colon and, by x-ray examination, throughout the colon (fig. 2). During the latter part of 1930, through the sigmoidoscope, from the lower portion of the pelvic colon and the rectum most of the adenomas were removed, preparatory to doing a colectomy (fig. 3). Their removal caused a marked decrease in the number of bowel movements, and the bleeding stopped. In January 1931 she became pregnant with the birth, in October, of a child who is still living. During pregnancy the bowel movements increased, with more blood and mucus, and she became very anemic. She would countenance no treatment that might interrupt pregnancy and, because of her two small children, refused to submit to surgery.

From April 1932 to March 1933 she was given a total of 4,400 roentgens in divided doses. Following this, what few polypi were left in the lower portion of the pelvic colon and rectum disappeared. In the summer of 1932 it was very evident, however, that a malignant condition had developed and, with gradual emaciation, she died March 23, 1933, aged 24.

Autopsy revealed the liver studded and filled with metastatic nodules. The mucosa of the colon, especially the distal half, excepting the lower pelvic colon and rectum where they had been removed, exhibited many polypi, from 3 to 5 cm. in diameter with pedicles up to 3 cm. in length (figs. 3 and 4). Clinically carcinoma had been diagnosed but the initial lesion was not located until, after death, the examination of many adenomas of the colon located one near the splenic flexure, 2 by 2.5 cm., which infiltrated the bowel wall and proved to be malignant.

Of the nine patients with polyposis who were still alive, radiation treatment was given to six (L. B., B. B., D. E., A. E., L. H. and N. F.), aged in order 2, 5, 9, 10, 11 and 11 years (figs. 1 and 5, A. E., and 6, L. H.). A roentgenogram was not taken of L. B. and B. B. Limitation of space will not permit giving details of treatment. Since their last treatment I have seen only two of the children: N. F., from whom all polypi in the lower part of the pelvic colon and the rectum but three had disappeared, and these I removed by fulguration; and L. H., presenting the severest case of polyposis of all, showing a 65 per cent improvement in the number of polypi, with marked improvement in his general health.

Fig. 6 (L. H., boy aged 11, table 3).—Marked mottling of multiple polyposis.

3. Personal communications to the author: Lewellys F. Barker, M.D., Baltimore, Oct. 4, 1930; George E. Binkley, M.D., New York, Nov. 24, 1934; John M. Rehfisch and L. Henry Garland, M.D., San Francisco, March 5, 1931, and Dudley Smith, M.D., San Francisco, Feb. 12, 1931.

Efforts were made in every case to shield the ovaries and testicles, despite the fact that, on account of the hereditary tendency of the disease, the wisdom of such precautions was questioned by practically all from whom I sought an opinion.

Admitting the difficulty and the possibility of error in carrying mental pictures of what one sees through the sigmoidoscope at one time for comparison with that seen at another time, when examinations are far apart,

TABLE 7.—*Age Incidence of Groups A and B*

| Fifteen Multiple Polyposis Cases: Adolescent Type | | |
|---|---|---|
| Years | Cases | Ages |
| 1-10 | 4 | 2, 5, 9, 10 |
| 10-20 | 5 | 11, 11, 13, 16, 20 |
| 20-30 | 3 | 21, 21, 29 |
| 30-40 | 1 | 38 |
| 40-50 | 2 | 42, 44 |
| Youngest | | 2 |
| Oldest | | 44 |
| Average age | | 19.5 |

I have tried not to see improvement unless it was there. For that reason my impressions do not sound very optimistic.

The results of roentgen treatments, as given, under such unsatisfactory conditions can be summed up as follows: After the initial irradiation sickness had ceased, the abdominal distress was relieved and the normal consistency of the stools usually returned, the blood disappeared and the patient's general health improved. In two patients aged 26 and 10 years, the polypi disappeared almost completely; in other patients there was a lessening in number. Favorable reaction to treatment was apparently more marked in cases in which the polypi were scattered than in those in which they were segregated, although here it was difficult to recognize the change so readily. In some cases the bowel became more tubular, the lumen diminished and the wall firmer, although more normal later.

About two thirds of the children from whom I received reports, following in some instances slight radiation sickness, slept well, had good appetites, never had to miss a day's attendance at school and felt better than before their treatments. They were all apparently improved, so far at least as their immediate health was concerned, but as for a cure no claim is made; neither is recommendation made for the employment of roentgen therapy until further evaluation is made.

461 Linwood Avenue.

## ABSTRACT OF DISCUSSION

DR. JOHN J. CORBETT, Detroit: An immense task has been performed by Dr. McKenney in reaching and examining these families. He has called attention in a forcible manner to the hereditary tendency. Three cases that have been observed by me are interesting, first, because of the remarkable relief given to two of them through roentgen therapy; secondly, because in all a malignant condition developed later on. The possibility of relieving some of these patients by means of roentgen therapy for a period of time, instead of by radical surgery, should be kept in mind, and a guarded prognosis should always be made, because in most of them a malignant condition eventually develops.

DR. THOMAS E. JONES, Cleveland: Two facts are pretty well established: first, that this disease does have a hereditary tendency, and, second, that if these people live a normal span of life a malignant growth will develop in all of them. The treatment heretofore has been rather heroic, total colectomy and permanent ileostomy. An ileostomy in a young person is rather a distressing situation. I should like to say a word about the surgical treatment of this disease, and I believe it offers one way out of a necessary total colectomy. A patient came under my observation in 1926, when she was 28 years of age. She had been advised to have a colectomy but refused it on account of having to have a permanent ileostomy. She was cachectic and had obstructive symptoms because the colon from the anal margin to the cecum was filled with polypi. I induced her to have a cecostomy, telling her I could close that at a later time when she recovered from the obstruction. She recovered in three months, and on proctoscopic examination the polypi were only about half the size they were originally. The edema had subsided. She was bleeding, however, and in order to temporize and to aid, I started to fulgurate the polypi. She came in every six or eight weeks, and I fulgurated fifteen or twenty polyps at a time. In 1930 I did an ileosigmoidostomy, and five months later I did the resection of the colon from just above the anastomosis around the cecum. She was alive and well four years afterward, without recurrence. In 1934 she was having one or two normal stools a day. I believe that with this method the four-year period can be cut down. A cecostomy first, for drainage, then fulguration of the polypi could possibly be completed in from four to six months, which would then also cut down the possibility of its becoming malignant before one completed the total removal of the colon from the point of anastomosis.

DR. DESCUM C. MCKENNEY, Buffalo: Of course some less radical treatment than surgery would be desirable, but unfortunately there is none available that is entirely satisfactory. In my files are a number of personal communications giving some favorable reports with the use of x-rays. My experience with such treatment is given in the latter part of the paper.

# DERMOID AND EPIDERMOID TUMORS (CHOLESTEATOMAS) OF CENTRAL NERVOUS SYSTEM

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AND
JAMES W. KERNOHAN, M.D.
ROCHESTER, MINN.

This report is based on a clinical, surgical and pathologic study of fifteen congenital epithelial tumors (epidermoids, dermoids, pearly tumors and cholesteatomas) of the central nervous system that have been verified microscopically at the Mayo Clinic. Fourteen of the fifteen patients who harbored these tumors were operated on by the members of the neurosurgical staff of the clinic, with three postoperative deaths. Fourteen of the tumors were intracranial. One dermoid was found in the spinal cord.

The clinicians in the Section on Neurology of the Mayo Clinic have kindly permitted us to include the clinical observations in these cases, thus enabling us to give a complete story of this unusual and very interesting group of tumors.

### LIFE HISTORY OR CLINICAL FEATURES

Pearly tumors (epidermoids and dermoids) are congenital new growths and since they arise from misplaced or aberrant epithelial tissue, the foundation for these tumors is laid early in the intra-uterine life. The evidence indicates that these tumors grow as does any other neoplasm, although the rate of increase in size is extremely slow. These tumors, because of their

Owing to lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the authors' reprints.

From the Section on Neurologic Surgery (Dr. Love) and the Section on Pathologic Anatomy (Dr. Kernohan), the Mayo Clinic.

Read before the Section on Nervous and Mental Diseases Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

insidious development and because of their situation within the central nervous system, may never give rise to symptoms or signs indicative of their presence. They may be accidental and accessory observations at the time of a carefully conducted necropsy. On the other hand, these lesions may be so situated as to give rise to symptoms and signs relatively early, either as a result of encroachment on some important structure, such as the optic nerve, or as a result of interference with the normal circulation of the cerebrospinal fluid. The symptoms and signs produced by an intradural epidermoid are not characteristic of this tumor but are those of any tumor that is similar in size and situation, except possibly for the slowness of development, which is not an accurate criterion. So far as we are aware, an intradural epidermoid has never been diagnosed prior to operation or necropsy, unless it be in the second case reported by Olivecrona in his paper on suprasellar cholesteatomas. Olivecrona [1] operated on a girl aged 19 years for a suprasellar cholesteatoma, and a few days later a woman aged 27 was admitted to his service with exactly the same ophthalmic and roentgenographic manifestations. He felt that he was justified in venturing a diagnosis of suprasellar cholesteatoma in the latter case. At operation, the conditions found were similar to those in the first case. The extradural and intradiploic epidermoids often produce a characteristic roentgenogram, and, when they do, a diagnosis is not difficult. This diagnosis has been made many times by many different observers. As far as intraspinal epidermoid tumors are concerned, they are not diagnosed prior to operation or necropsy. They frequently are associated with more or less obvious congenital lesions, particularly of the spinal column, such as spina bifida, either manifest or occult. The presence of a congenital tumor or congenital compression of the spinal cord can be suspected, but its true nature must await exploration.

## DIAGNOSIS

The diagnosis of an intracranial epidermoid is the diagnosis of any intracranial neoplasm, except that it possibly is slightly more difficult owing to the extreme slowness of development of the tumor. The localization in some cases is determined by ordinary neurologic methods; in others, the ocular changes (defect in the visual field) denote the situation of the growth. However, it is necessary to employ either ventriculography (if choked disks are present) or encephalography to detect and localize some of these tumors. Likewise injection of iodized oil at times is necessary to localize intraspinal congenital epithelial tumors. As stated previously, the intradiploic and extradural epidermoids usually can be diagnosed by roentgenography.

## REPORT OF CASES

This report is based on a careful study of fifteen [13a] cases collected from the files of the clinic. In ten of the cases the tumors were verified microscopically as epidermoids. All these tumors were intracranial, seven being intradural and three extradural. Five tumors were verified microscopically as dermoids; three of these were intracranial and intradural; one was intraspinal, intradural and intramedullary. The fifth tumor was extracranial but, because of the erosion of the skull and the finding of structures within the tumor which unmistakably pointed to an origin common to that of the intracranial dermoids, it has been classified as an intracranial tumor.

CASE 9.—A white woman, aged 43, registered at the clinic on April 4, 1935, because of headache and a "soft spot" in the right parietal region. At the age of 10 years she had received a blow on the right parietal region. A hematoma had formed and after it had disappeared she had noted a defect in the skull. When she was 40 years of age the defect had begun to increase in size. Six months before she came to the clinic she had struck the "soft spot" on a nail; after that the defect had increased rapidly in size, and bulging had been noticed for the first time.

The patient always had been of the nervous, high-strung type and she had been accustomed to worrying a great deal.

Examination at the clinic revealed that the skull in the right temporoparietal region had been replaced by a soft, doughy mass, about 7.5 by 5.5 cm. This mass was elevated about 1 cm.

Fig. 1.—Erosion of skull caused by epidermoid; increased density above mastoid process represents an osteoma which was a secondary finding; the metallic clip is a "bobbie pin" in the patient's hair.

above the level of the scalp. The bony defect was irregular in outline. No tenderness was present on palpation. The general physical, ophthalmic, neurologic and laboratory examinations did not reveal any abnormality except that roentgenograms of the skull revealed a sharply defined, irregular region of destruction, which involved both tables of the skull, just posterior to the coronal suture in the right parietal region. The bone was thickened about the periphery of the destruction (fig. 1). Just posterior to the right mastoid process was a dense region about 3 cm. in diameter. A clinical diagnosis of epidermoid was made.

April 23, 1935, the mass was explored and found to be a large (4 by 8 cm.) cystic tumor, which was situated extradurally and extended outward to the periosteum; the intervening bone had been completely destroyed. The tumor was removed completely; the outer layer of dura also was removed with the tumor, in order to prevent recurrence. At the same time an osteoma (see roentgenologic observations) was removed from the mastoid region. Convalescence was entirely satisfactory. It was necessary to aspirate the wound on several occasions because of the tendency for the defect to become filled with serum. The patient was dismissed from the hospital eight days following operation, at which time the wound was healed and the neurologic examination did not reveal anything abnormal.

1. Olivecrona, Herbert: Suprasellar Cholesteatomas, Brain 55: 122-134 (March) 1932.

13a. Since this paper was presented in Kansas City one of us (Love) has successfully operated on two additional congenital epithelial tumors of the brain. One of the patients presented more or less classic symptoms and signs for a Rathke pouch cyst, but when the tumor was removed and the tissue studied by Kernohan it was discovered that the tumor was a true epidermoid cyst. The other patient had had grand mal seizures for sixteen years. His neurologic examination was negative, but encephalography disclosed a defect in the anterior horn of the right lateral ventricle. At operation a very large intracerebral dermoid cyst was removed.

The histologic picture was identical with that found in case 1 except that the wall of the cyst was slightly thicker than it was in case 1; nevertheless, the wall of the cyst was made up of squamous cells with keratohyaline granules. There were no basal cells, hair follicles, sweat glands or sebaceous glands. Letters indicate that the patient's health is good, but she is much concerned about the defect in her skull and is suffering from cancerphobia.

In this case there seems to be a direct relationship between trauma to the skull and the subsequent development of a neoplasm at the site of injury.

CASE 12.—*History.*—A single woman, aged 30, registered at the clinic Aug. 22, 1935, complaining of diplopia, vomiting, dizzy spells and headache. In January 1935 she had noted transient attacks of diplopia, associated with occipital headaches. In March she had noted blurring of the vision, especially for close objects. About the same time vomiting, without nausea, had made its appearance. In May the patient had begun to complain of dizziness and had had difficulty with locomotion, which she had attributed to defective vision. The patient had been an "intelligent, wise-cracking young lady."

Ocular examination at the clinic did not reveal any abnormality. There was definite and rather marked rigidity of the neck; otherwise the neurologic examination did not reveal any evidence of an intracranial lesion. Roentgenograms of the head and neck disclosed benign frontal hyperostosis and a fusion of the second and third cervical vertebrae. The latter was considered to be a congenital anomaly. A tentative diagnosis of a tumor of the posterior fossa was made; ventriculography revealed a symmetrical internal hydrocephalus, which confirmed the suspicion of the presence of a lesion in the posterior fossa. A suboccipital craniectomy was performed by Dr. Adson, August 30. Incision of the dura mater in the midline revealed a brownish encapsulated tumor. The tumor was cystic and from it a semisolid brownish yellow substance was aspirated. The wall of the cyst was removed completely. The tumor was situated in the vermis and did not involve the fourth ventricle; that is, there was a "wall" of brain tissue between the tumor and the roof of the fourth ventricle. The wound

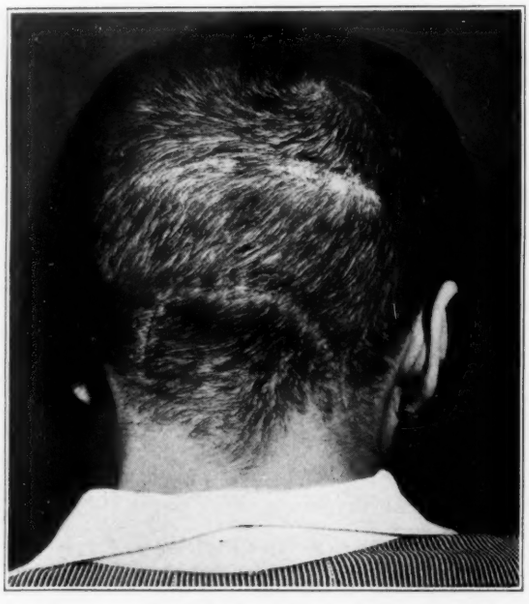

Fig. 2.—Healed wounds after operation for tumor of brain.

healed by first intention (fig. 2). The patient was dismissed from the hospital sixteen days, and from our care twenty-two days, following the operation. At the time of her dismissal her eyes were normal; she walked with a little unsteadiness of gait but there was no headache, diplopia, dizziness or vomiting. A letter received from the patient March 14, 1936, revealed that she was in excellent spirits at that time and was "wise-cracking" as usual; her letter was profusely illustrated with character sketches.

*Pathologist's Report.*—The stratum cellulosum was typical, but in addition to the basic staining material found in the previous tumors there were occasional hair shafts without definite bulbs. The tumor was lined with squamous stratified epithelium; it contained some keratohyaline granules, but no basal cells were present. There were some hair shafts, but hair follicles were not found, although the hair shafts were surrounded by epithelium. There were sebaceous glands, but no sweat glands or apocrine glands were present. Around

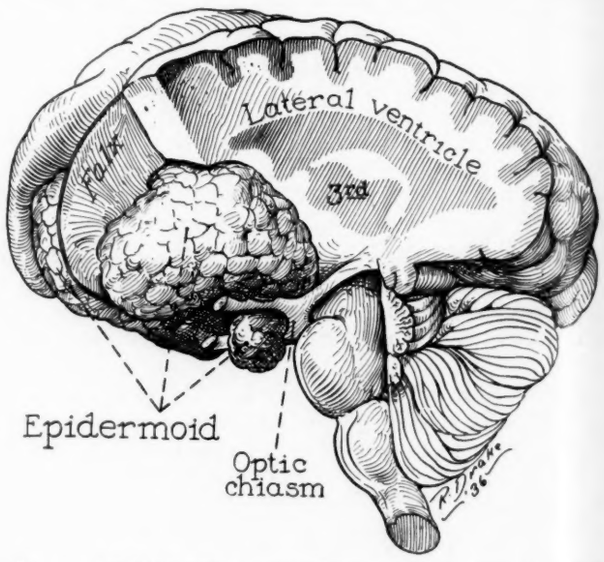


Fig. 3.—Semidiagrammatic representation of tumor (case 13) drawn from observations at operation and ventriculograms that were made prior to removal of epidermoid.

these epithelial structures there was a very thick wall of dense hyaline connective tissue and clefts from which cholesterol crystals had been dissolved during the histologic technical procedures. Around some of these clefts there were foreign body giant cells.

CASE 13.—A white man, aged 39, was referred to the clinic because of convulsive seizures, loss of memory and disturbance of mentality. At the age of 11 years a piece of steel had been extracted from his left eye and the vision in this eye had been permanently lost. He had been discharged from the army in 1918 because of "blindness." In 1925 he had received several contusions of the head when two busses had collided. In 1932 he had been knocked unconscious by a bicycle. In 1936 he had been knocked unconscious when some one had thrown a metal shoe from a second story window and struck him on the head. The history of the convulsive seizures was difficult to elicit because of the patient's faulty memory and tendency to theorize about his condition. Apparently, he had had his first convulsion in 1931. Two years later he had had another convulsion; after this the convulsions had recurred with increasing frequency. Four years (1932) prior to his registration at the clinic he had first noted diminution in the sense of smell on the right side. He gradually had lost the sense of smell entirely. He had become more and more forgetful and absent minded. He had been unable to concentrate, and mental effort had fatigued him unduly. There had been some attacks of very bad smell (sense of smell was lost objectively) which had been associated with nausea and giddiness.

Examination at the clinic revealed that the patient appeared anemic. He was very loquacious and his conversation was chiefly in technical (medical) jargon which was at times very difficult to comprehend. The value for the blood pressure was only 98 mm. of mercury for the systolic and 66 mm. for the diastolic. His basal metabolic rate was —14 per cent. The acuteness of vision was 6/30 in the left eye and 6/6 in the right eye. The pupils were equal in size; the reflexes were normal for the right eye, but those for the left eye were diminished about 50 per cent. Examination of the ocular fundi disclosed a moderate pallor of the optic disks without loss of substance, which suggested a beginning primary optic atrophy.

Examination of the fields of vision revealed an incomplete bitemporal hemianopia. Neurologic examination revealed complete loss of smell bilaterally. Hearing was reduced in each ear. The tendon reflexes were diminished and no abnormal reflexes could be obtained. Roentgenograms of the head disclosed flattening of the sella turcica, with erosion of the posterior clinoid processes. The clinical diagnosis was basofrontal tumor or suprasellar cyst with hypopituitary syndrome. A right transfrontal exploration of the basofrontal region, which was performed by one of us (Love) March 20, 1936, disclosed a very large grayish, pearly tumor. Only the distal third of the right olfactory nerve could be seen when the right frontal lobe was elevated. The tumor surrounded the remainder of this nerve, hid both optic nerves and the optic chiasm from view, and extended laterally under the temporal lobe into the middle cranial fossa (fig. 3). When the capsule of the tumor was incised, flaky, avascular material, characteristic of that seen in epidermoids, was uncovered. By means of scoop and aspirator, the entire tumor was removed, except for a small piece of capsule that was intimately associated with the circle of Willis. A fairly large chunk of tumor was removed from the left optic foramen. When the tumor had been removed, both optic nerves, the optic chiasm, the anterior portion of the circle of Willis and the interior of the sella turcica appeared much as they do after a very extensive excision of a large tumor of the pituitary body. The wound was washed thoroughly with physiologic solution of sodium chloride to remove all loose pieces of the tumor and then was closed. Two Penrose cigaret drains were inserted to facilitate further cleansing of the operative field of any of the toxic substance of the tumor. The drains were removed forty-eight hours after the operation. The convalescence was uneventful and the patient was dismissed from the hospital on the eighth postoperative day (fig. 4). Postoperative neurologic examination did not reveal any change in the patient's condition. Examination of the eyes, two weeks following removal of the tumor, was made too soon to indicate what improvement in vision might occur. The patient, however, could read well.

The tumor was a typical epidermoid very similar to that described in case 1. The patient appeared anemic. His skin was pale and his appearance suggested cachexia, although his state of nutrition was satisfactory and the results of the blood count and the value for the hemoglobin were normal, as they also were in case 3. The patient's appearance, the low value for the blood pressure, and the low basal metabolic rate suggested hypopituitarism. These observations in association with the ophthalmic and roentgenographic evidence of a lesion in the region of the sella turcica brought up the question of a lesion of the pituitary body. As so often happens, exact diagnosis was impossible until the lesion was uncovered at the time of operation.

### PATHOLOGY

In the presentation of these cases we have distinguished epidermoid from dermoid cysts. We have considered those tumors in which only squamous and basal type of epithelium were present to be epidermoid tumors. Cysts containing other elements of the normal skin, such as sweat glands, sebaceous glands, hairs or hair follicles, we have designated as "dermoid cysts." There were ten intracranial epidermoids, while there were three dermoids of the brain and one of the spinal cord; there was one dermoid cyst between the skull and the scalp. It was doubtful whether this tumor should be included in the present study, but it has been included because of several unusual and interesting features. Trauma has been thought to be of considerable importance in the etiology of these tumors by allowing remnants of the epidermis to be carried into the deep layers of the scalp or even between the inner and outer tables of the skull. These remnants could thus act as an anlage of epidermoid or dermoid tumors. In case 14 there was one fact which suggests that traumatic misplacement of the epidermis of the scalp was not a factor in the etiology of the tumor. We found apocrine glands ("skunk glands") in the wall of the cyst, and apocrine glands are not normally present in the scalp but are found only in such places as the skin of the breast, axillae, and around the anus (fig. 5). The presence of these glands in the dermoid between the scalp and the skull suggests an embryologic malformation as the anlage for this and probably for most other such dermoids and epidermoids. However, trauma may serve to draw attention to them and even may hasten the progress of such growths.

Dermoid and epidermoid tumors of the nervous system may be divided into the following subgroups: those found in the cerebellum, those found in the spinal cord,

Fig. 4.—Appearance of patient 13 following his dismissal from the hospital; right transfrontal wound well healed.

those which originate in the basotemporal region and which extend into the temporal lobe, into the suprachiasmal region or even into the frontal lobes, and, finally, those found between the tables of the skull. There is nothing which is characteristic microscopically of any one of these tumors; all are similar.

We consider squamous epithelium that can be identified as such a necessary criterion for the microscopic diagnosis of an epidermoid tumor. We have studied several tumors the contents of which were typical of dermoid or epidermoid tumors, but when we could not identify squamous epithelium in the walls of these cysts we did not classify them as dermoids or epidermoids. Squamous epithelium has several characteristics by which it can be identified. The presence of keratohyaline granules is necessary (fig. 6). These granules are present only in squamous epithelium, and only in the superficial layers. Prickle cells or squamous cells with intracellular bridges are also characteristic, but

frequently these bridges cannot be observed. Cornification of the superficial layers is perhaps one of the most constant characteristics, and during the stage of cornification the keratohyaline granules disappear. The cornified cells are then desquamated and it is these desquamated cornified cells which constitute the contents of the cysts. On this account, cholesterol crystals are rarely found in epidermoids; this is readily proved by

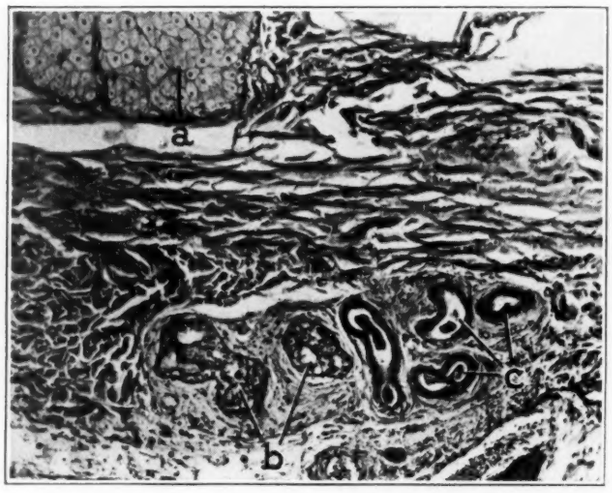


Fig. 5.—Wall of cyst showing (*a*) sebaceous glands, (*b*) sweat glands and (*c*) apocrine glands (slightly reduced from a photomicrograph with a magnification of 75 diameters).

microscopic or chemical analysis of one of these cysts. We found cholesterol crystals in several of the tumors in the cases described, but these crystals were associated with old blood pigment, hyaline and other types of connective tissue, and lymphocytes, but not alone with the desquamated epithelium or the secretions of the sebaceous glands or sweat glands. We observed blood vessels in several of these cysts and it seemed to us that the cysts must have ruptured at some previous time and allowed the mesodermal elements to enter the cysts.

Basal cells are frequently associated with squamous epithelium, but they are not always present in epidermoid cysts; when, however, they are observed, other elements that are characteristic of skin usually are present and the tumor is a dermoid. Hair present in a dermoid tumor of the nervous system seldom has good roots or hair bulbs, although the stalks are frequently surrounded by squamous and basal epithelium which are typical of hair follicles. Occasionally, hair stalks puncture the walls of dermoid tumors and project into the surrounding brain tissue without even being surrounded by epithelium. When this phenomenon is observed, the brain tissue apparently has no resentment toward the foreign body, since there is no cellular reaction on the part of the brain tissue around the hair shaft.

The only change in the brain as the result of the tumor is one of local atrophy, which is attributable to pressure exerted by the expanding cyst. The ganglion cells disappear in the neighborhood of the tumor and there is frequently a mild degree of gliosis. Occasionally, foreign body giant cells were observed in these cysts but they were always in the cysts and surrounded cholesterol crystals which acted as foreign bodies.

In one of our cases we encountered a large number of daughter cysts within the main cyst (fig. 7). This was a unique observation. The walls of the daughter cysts contained the same type of epithelium as did the mother cyst; therefore the daughter cysts were readily identified as epidermoid cysts. We have no explanation to offer as to how these small cysts occurred or by what process they occurred. If they had been situated outside the main cyst it would have been possible to explain them on the same basis as the mother cyst, namely, as cell rests, but it is difficult to understand how cell rests could enter the large cyst which grew after birth. The cyst in which they were encountered contained much mesodermal tissue, which probably had gained entrance through a previous rupture, and it is possible that the daughter cysts had gained entrance at the same time or in a similar way. We have already mentioned the presence of apocrine glands in the wall of one of these cysts; such glands are not generally recognized as being present in dermoid tumors, but their presence should be no surprise because of the peculiar odor noted in the contents of some dermoid cysts.

*Differential Pathology.*—It is necessary to distinguish dermoid or epidermoid tumors from several other types of tumors of the brain or spinal cord. The most common neoplasm with which epidermoids are confused or to which they bear the closest similarity are adamantinomas or cysts of Rathke's pouch. The latter neoplasms can be and usually are diagnosed correctly by their characteristic roentgenologic appearance. On microscopic examination, adamantinomas have a characteristic stroma with numerous anlagen of teeth which are characteristic. These tumors also produce characteristic roentgenologic shadows.

Epidermoid or dermoid cysts must also be distinguished from gliomatous cysts;[17] but this is easy, as the latter cysts usually contain a clear yellow fluid which coagulates on standing and the walls of the cysts are not lined with epithelium but are lined with neo-

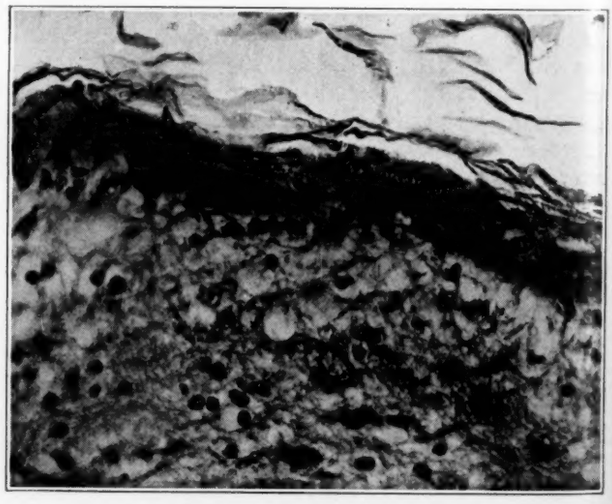

Fig. 6.—Epithelium of epidermoid cyst resting on brain tissue; the superficial cells contain typical keratohyaline granules; specimen stained with hematoxylin and eosin (slightly reduced from a photomicrograph with a magnification of 400 diameters).

plastic glial cells. Abscess of the brain does not have an epithelial lining and the contents are usually purulent matter from which diverse organisms can be obtained on culture. The clinical course of abscess of the brain is usually short and associated with fever; epidermoid tumors usually progress slowly and the

17. Craig, W. McK., and Kernohan, J. W.: Cerebral Cysts, J. A. M. A. **102**: 5-10 (Jan. 5) 1934.

clinical course is afebrile. There is one condition to which an epidermoid tumor, or so-called cholesteatoma, is frequently likened, namely, the so-called cholesteatoma which is frequently found in the lateral ventricle of the horse. We have recently had an opportunity to study two specimens of this tumor and there is not even a remote resemblance to the epidermoid or dermoid tumor found in the human brain. The cholesteatoma

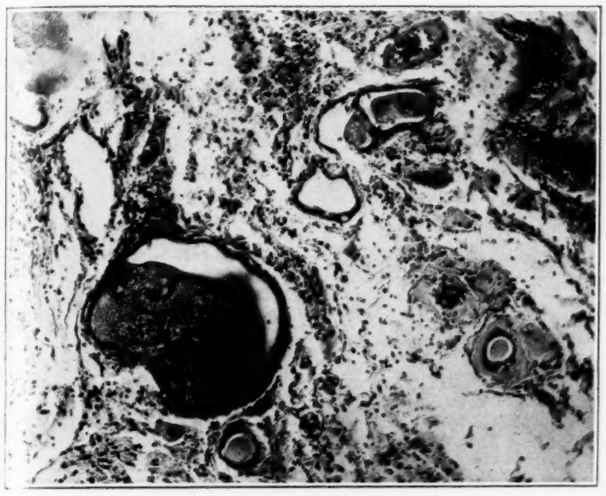

Fig. 7.—Contents of cyst, showing daughter cysts lined by squamous epithelium; cysts surrounded by inflammatory connective tissue (slightly reduced from a photomicrograph with a magnification of 110 diameters).

of the lateral ventricle of the horse is a tumor which is made up of masses of calcium embedded in connective tissue which contains some cholesterol crystals. Occasionally these crystals are surrounded by some foreign body giant cells. There is no basic staining or cornified desquamated epithelium, and the entire mass is surrounded by a thin layer of connective tissue outside of which are cells of the choroid plexus. These tumors are similar to much smaller masses normally seen in the human brain. In describing epidermoid tumors of the brain, reference is frequently made to so-called cholesteatoma of the ear. The latter condition is usually the result of a chronic infection in which the products of inflammation do not drain from the middle ear but accumulate and gradually erode the bone. There is no squamous epithelium surrounding this mass, which is made up of débris resulting from dead cells.[18]

The epidermoid cysts between the inner and outer tables of the skull produce a peculiar roentgenogram which may be simulated by certain sarcomas of the skull, but there is no difficulty in arriving at a differential diagnosis after examining a specimen microscopically. In the same way, epidermoid cysts are easily distinguished from osteitis fibrosa cystica. Sebaceous cysts of the scalp should be distinguished from dermoid or epidermoid tumors situated between the scalp and the skull. The greatest difference between these cysts is the absence of squamous epithelium and keratohyaline granules in the wall of the sebaceous cysts; the latter are lined with a secreting type of epithelium.

Echinococcus cysts frequently have been found in various portions of the brain and spinal cord, and epidermoid cysts must be distinguished from them. Squamous epithelial cells do not line echinococcus cysts, and the contents of the two cysts are also different. Hooklets can usually be found in the contents of echinococcus cysts, which are fluid in contrast to the semisolid contents of epidermoid cysts or dermoid cysts.

18. Lillie, H. I., and Stark, W. B.: The Insidious, Symptomless, Destructive Effect of Cholesteatome, S. Clin. North America **6**: 1359-1364 (Oct.) 1926.

## COMMENT

The average age of the patients who had dermoid tumors was 22.3 years at the onset of symptoms; the greatest age at the time of onset was 29 years. The average age of patients who had epidermoid tumors was 20 years at the time of onset; the greatest age at the time of onset was 34 years. The average duration of symptoms was sixteen years in cases in which epidermoids were present and eight and a half years in cases in which dermoids were present. The youngest patient who had a dermoid tumor was 2½ years of age, and the youngest patient who had an epidermoid tumor was 24 years of age at the time of examination at the clinic. Twelve of the fourteen patients (85.7 per cent) who had a congenital epithelial tumor (dermoid or epidermoid) in the head complained of headache. Voris, Adson and Moersch,[19] in a study of 314 cases in which tumors of the frontal lobe were verified at the Mayo Clinic, found that 83 per cent of the patients complained of headache; the next most frequent symptom was convulsive attacks. In our series, only two patients had had convulsions; both of these patients had tumors that were situated in the basofrontal region. It is of interest to note that 78.5 per cent of the patients in our series of cases displayed definite alterations in their mental reactions, a proportion which is higher than that (63 per cent) found by Voris, Adson and Moersch in cases in which tumors involved the frontal lobe. It is known that mental disturbance[20] is a frequent finding in cases of tumor of the brain, but it is difficult to account for such a high percentage in this series of tumors, most of which did not involve the frontal lobes. A congenital intracranial dermoid or epidermoid should be suspected in any case in which mental disturbance is associated with headache that has

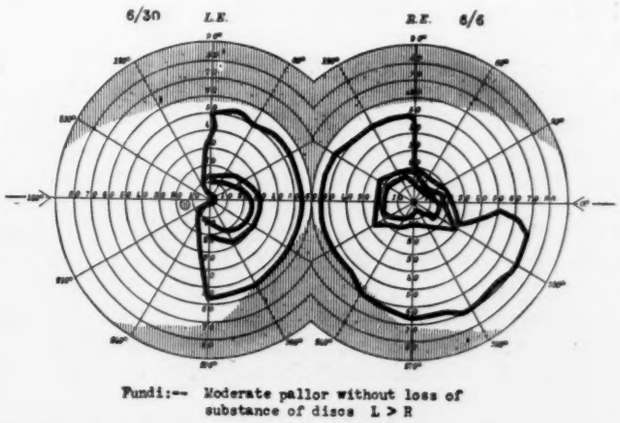


Fig. 8.—Perimetric fields (case 13) showing bitemporal hemianopia.

been present for a long time and suggests increased intracranial pressure. This is particularly true if another congenital lesion has been detected. A high degree of suspicion may lead to an accurate preoperative diagnosis in such cases.

Five of the patients in this series had edema of the optic disks at the time they were examined at the clinic.

19. Voris, H. C.; Adson, A. W., and Moersch, F. P.: Tumors of the Frontal Lobe: Clinical Observations in a Series Verified Microscopically, J. A. M. A. **104**: 93-98 (Jan. 12) 1935.
20. Moersch, F. P.: Psychic Manifestations in Cases of Brain Tumors, Am. J. Psychiat. **4**: 705-724 (April) 1925.

One had an associated defect in the field of vision which was sufficiently characteristic to localize the tumor. Three patients had visual defects, the one just mentioned and two others; one of the latter, patient 13, also had pallor of the optic disks (fig. 8). The visual defects were accurately localizing.

The presence of a tumor and its situation were correctly diagnosed preoperatively in eleven of the fourteen cases in which the tumors occurred in the head. Encephalography was employed in two of the remaining three cases. By this procedure an expanding lesion was definitely demonstrated in one case, and in the other case the roentgenograms were suggestive but inconclusive.

In eight cases the tumors were diagnosed and localized by neurologic and ophthalmic methods. In four cases the tumors were diagnosed by palpation of the head. Roentgenograms of the skull confirmed the presence of a tumor in these four cases; in two of these cases the roentgenogram was so characteristic that a correct preoperative diagnosis of the type of tumor was made. In the third of these cases, in which the tumor was the first of the type seen, the condition would be recognized now, for the roentgenograms were characteristic. In the fourth case the tumor had been diagnosed elsewhere by aspiration of the contents of the cyst.

Extradural epidermoids can usually be recognized in the roentgenograms. The characteristic appearance at first is that of a more or less smooth erosion of the calvarium and a ballooning of the tables of the skull; later, one or both of the tables may be destroyed. When the outer table is destroyed, a soft doughy mass can be palpated over a defect in the bone. Calcium may be observed in the wall of the tumor.

There are no criteria for making a correct diagnosis of the type of intradural tumor prior to operation. Intracranial tumors may produce symptoms for many years. In some of the cases in this series, symptoms had been present for as long as twenty years, but the symptoms usually are not known or considered to be the result of the tumor until after it has been discovered either at operation or at necropsy. There usually is a change in the character or severity of the symptoms or additional disturbances that lead to a careful investigation and to the discovery of an intracranial tumor.

The relationship of trauma to these tumors is not clear. Trauma to the region of such a tumor doubtless will influence its growth, but we do not feel that injury in itself is sufficient to cause the tumor. Fortunately, a preoperative diagnosis of the type of tumor is not necessary, for these tumors lend themselves admirably to surgical extirpation and the results of operation are very gratifying.

In fourteen of the fifteen cases studied, operation was performed. There were three postoperative deaths. A child, aged 2½ years, died because of increased intracranial pressure, eleven days following operation for a dermoid cyst of the cerebellum. There was no evidence of meningitis. A man, aged 30, died of bronchopneumonia five days following operation for a dermoid cyst of the right temporal lobe. No meningitis was discovered. The third death was that of a woman, aged 32, who succumbed half an hour following the complete removal of a large epidermoid from the fourth ventricle. At necropsy, no adequate explanation for her death could be found.

### SURGICAL REMOVAL OF DERMOID AND EPIDERMOID TUMORS OF THE CENTRAL NERVOUS SYSTEM

The treatment of these tumors is surgical removal, and the surgical extirpation should be as complete as possible. One has to be satisfied at times with an intracapsular enucleation, but there certainly is a chance of recurrence if the capsule is left behind, for it is the capsular portion which constitutes the active growing portion of the tumor. Roentgen therapy is without avail, as one would naturally suppose from the life history and microscopic structure of these tumors. The intradiploic and extradural tumors offer no surgical problem, but one must be careful in removing an intradiploic tumor lest one overlook an extension of the tumor intracranially through the thinned and eroded inner table of the skull.

The surgical approach to these tumors does not differ from that of any similarly situated neoplasm. There are, however, some points of technic which are peculiarly applicable to this class of tumors. Because of the avascularity of these lesions, the exposure does not have to be as wide as does that for a glioma or meningioma of similar size. The contents of these tumors can be removed with a scoop and an aspirator, and the collapsed capsule then can be removed without encountering much bleeding. Usually, a few small vessels will have to be controlled by means of electrocoagulation. It is usually possible to effect a complete extirpation of the contents and then the capsule. However, when a portion of the capsule is intimately associated with an important structure, such as an optic nerve or a branch of the circle of Willis, one should not sacrifice such a structure in order to accomplish total removal, for these tumors grow very slowly and it is the better part of surgical judgment to risk the chance of recurrence of the tumor than to do irreparable damage in effecting complete removal of a benign tumor.

There has been a great deal written and more said regarding the development of meningitis following operations for the removal of these tumors. We have not had an instance of meningitis in this series of cases. We have seen meningismus but have never obtained any organisms from smears or cultures of the cerebrospinal fluid following operation; in the cases in which death occurred there was no evidence of meningitis at necropsy. We believe that drainage of the operative field for forty-eight hours following operation is of distinct value. This encourages a washing to the outside of any of the toxic contents of the tumor that may have been spilled at the time of operation.

### SUMMARY

Dermoid and epidermoid tumors (cholesteatomas or pearly tumors) of the central nervous system are benign, congenital neoplasms of epithelial origin. Their clinical course is variable and the intradural variety is not diagnosed prior to operation. The extradural type can be recognized roentgenographically. Surgical removal of these tumors is possible and the results are good. A diagnosis of tumor was made in each of the fifteen cases reviewed, and fourteen of the fifteen patients were operated on and the presence of a tumor verified at operation. There were three postoperative deaths. The other patients recovered and were living at the time this paper was written; the length of life varied from one month (in case 13) to six and a half years following the surgical removal of the tumor.

## ABSTRACT OF DISCUSSION

DR. ERNEST SACHS, St. Louis: I have had six cases that fall into this group, which is a little less than 1 per cent in the tumor series. It is a rare condition in my experience. All the cases were of the epidermoid type. None corresponded to the type that the authors spoke of as the dermoid. They were all intradural tumors. It has been my experience, just as the experience in the Mayo Clinic, that prior to the operation it was possible to make a pathologic diagnosis. These tumors, in a number of instances, developed very slowly, but that would not be a point that would enable one to differentiate or predict what sort of a tumor one would encounter. Two cases are of particular interest. Of the six cases, four were located in the posterior fossa, one was around the chiasm and one was located in the incisura, lying just over the vein of Galen. The patient was operated on twice. At the first operation I thought I was dealing with a posterior fossa tumor and tried to reach it through the posterior fossa. Subsequently by combined operation I was able to get the tumor out, capsule and all. I have had one other case that was of particular interest in bearing on the point made, namely, that it is necessary to remove all the capsule in order to obtain a cure. The patient was a girl whom I operated on in 1922. At that time a diagnosis of eighth nerve tumor was made. At operation in the region of the eighth nerve, embedded in the bone, I found a typical (at that time is was called cholesteatoma) epidermoid tumor. The notes made at that time stated that I had removed the entire tumor and the capsule. This girl came back thirteen years later with an enormous recurrence. I operated on her a second time. The tumor at this operation weighed 41 Gm. She died of bronchopneumonia several days after the operation. Evidently I had left a bit of the capsule, although I was under the impression that I had removed all of it. It is absolutely essential, in order to avoid a recurrence, to remove every bit of the capsule, if possible. One of the tumors around the chiasm, similar to the one the authors showed, I believe I have removed entirely. It is a number of years since this girl was operated on, but there too I am wondering whether one of these days the patient may not return. In these six cases, nine operations were performed. One patient died at the second operation and two others died, of a fourth ventricle tumor and one in the angle, immediately after operation. I was somewhat at a loss to explain the origin of the tumor lying in the incisura. Perhaps Dr. Bailey can explain how an epidermoid tumor can develop just above the vein of Galen, lying at the form of the incisura. I presume it is an epithelial rest which, of course, one cannot find anywhere. It seems worth mentioning such an unusual location.

DR. R. GLEN SPURLING, Louisville, Ky.: The authors have covered the subject of epidermoids in a thorough and instructive manner. In my series of approximately 200 verified brain tumors there were two cholesteatomas, one in the cerebellopontile angle, the other in the left frontal lobe. There were no unusual features to the angle epidermoid; the frontal one, however, was associated with an extraordinary clinical history: A boy of 17 years was admitted to my service May 31, 1931, with complaints of headache, vomiting and drowsiness. The acute symptoms were of three weeks' duration, but he had been subject to headache for about a year. The past history was negative except for typhoid two years previously, from which he made an uneventful convalescence. The neurologic examination led to the diagnosis of a left frontal lobe tumor, and he was prepared for craniotomy. Before turning the frontal bone flap, I did a needle exploration of the frontal lobe through a burr hole in the hope of tapping a cyst. Much to my surprise I evacuated a large abscess, the pus from which yielded a pure culture of typhoid bacillus. The abscess refilled promptly and after several aspirations a wide exploration of the cavity was made. After the purulent material was cleared away a glistening circumscribed mass was uncovered. This mass was approximately the size of a hen's egg and had the typical appearance of a cholesteatoma. It was removed completely. The abscess wall was drawn to the surface and attached to the glia. Healing progressed satisfactorily and the patient was discharged August 11, free from symptoms. He has remained well to date. Microscopic examination of the specimen showed the typical appearance of a cholesteatoma. What sequence of events led to the formation of the typhoid abscess and the relationship between the abscess and pearly tumor can at best be but speculated on. That the cholesteatoma lying in the depths of the frontal lobe grew from an embryonic cell rest is the only reasonable certainty connected with the whole consideration. It is my belief that the infection was implanted, either by coincidence or otherwise, on an already actively growing tumor.

DR. JOSEPH E. J. KING, New York: My two cases were included in Dr. Bucy's paper on this subject. The first case was seen in 1923. X-ray films were inspected before examination of the patient. The skull defect was so like that of Dr. Cushing's case reported in the May 1922 issue of *Surgery, Gynecology and Obstetrics* that I was able to make a preoperative diagnosis. Dr. Cushing stated that a diagnosis should be made before operation from the x-ray films alone in those cases of extradural epidermoid cholesteatoma presenting the typical skull defect. This defect has a scalloped border or margin, which is very dense and hard. When seen on edge, as when looking at a saucer edgewise, the superimposed margins of the defect appear as a very dense line. The lesion arises in the diploe, destroys the inner table of the skull, and thins the outer table so that it may even be perforated at certain points. It may attain a very considerable size. The lesion in the first case was almost identical with that of Dr. Cushing's, except that it was somewhat smaller. It was completely removed. The second case was one in which the lesion involved the posterior fossa. It showed a similar skull defect and was diagnosed before operation. It was removed by morcellation for the reason that it could not be extirpated *en masse*. The first patient was operated on about thirteen years ago and the second about three years ago. Both are doing well and have shown no signs of recurrence.

DR. WALTER E. DANDY, Baltimore: These tumors develop from congenital rests; they are therefore of very slow growth, for most of them are found in adult life. In our cerebellar approach for trigeminal neuralgia, ten of these tumors have been encountered in the cerebellopontile angle and were presumably the cause of the pain. They are small tumors, just pressing on and setting off the zone in trigeminal neuralgia. None of these tumors would have been found had the temporal approach been used for section of the sensory root; and, since the tumors are small, they can be removed with almost no risk. Later they would doubtless have caused signs and symptoms of intracranial pressure and would have been far more difficult of complete removal.

DR. J. GRAFTON LOVE, Rochester, Minn.: In one of our patients, a 2½ year old child with a tumor in the cerebellar lobe, there was found at operation what appeared to be grossly an abscess. A culture was taken, from which a pure streptococcus was obtained. At the time of the operation the tumor had the characteristics of an abscess. It was drained as an abscess, and no extirpation was attempted. The child, unfortunately, died five days following operation from markedly increased intracranial pressure. I am glad Dr. Sachs emphasized the importance of total removal, which we didn't have the time to emphasize. If the capsule, which is the active part of these tumors, isn't removed, one can look forward to a recurrence.

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**Diphtheritic Laryngitis.**—Diphtheritic membrane may form in the fauces, and spread to the larynx, or it may be present in the larynx alone. The term "true croup" is applied to diphtheritic laryngitis. The symptoms are those of diphtheria with laryngeal obstruction in addition. The child is ill and pale, with a significant bluish tinge of the cheeks and lips. The breathing is noisy, and there is indrawing of the intercostal spaces and upper abdomen, indicating the degree of respiratory obstruction. Spasm of the larynx will aggravate symptoms. The cervical glands are enlarged. Examination of the throat may show membrane on the fauces. In its absence it is essential to examine the larynx with the direct laryngoscope. No anesthetic is necessary or advisable. Treatment is that of diphtheria.—Crooks, James: Surgical Aspects of Croup in Childhood, *Practitioner* **137**:709 (Nov.) 1936.

# Clinical Notes, Suggestions and New Instruments

## SUBCUTANEOUS EMPHYSEMA IN ASTHMA

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ANN ARBOR MICH.

Subcutaneous emphysema is a rare complication of asthma. Only nine cases [1] have been reported since Watson [1] first described the complication in 1885. Because of the paucity of information concerning this condition, we report the following case:

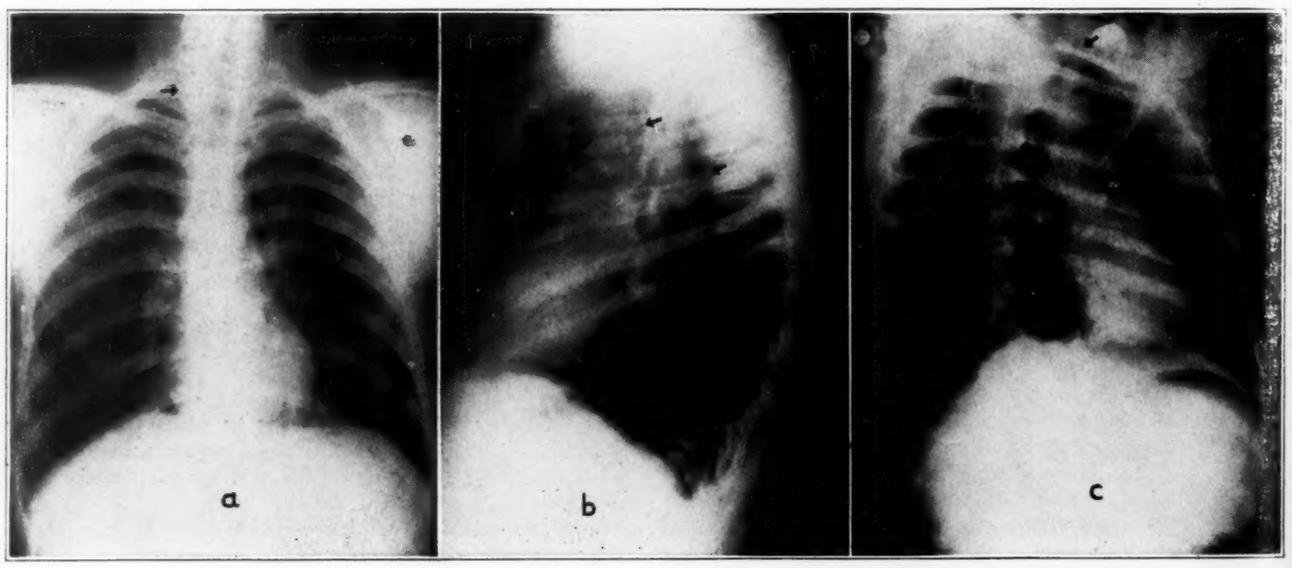
### REPORT OF CASE

J. B., a boy aged 16 years, admitted to the University Hospital, Oct. 18, 1935, complained of shortness of breath of seven days' duration. He described the dyspnea as expiratory. The attacks were accompanied by an audible wheeze and terminated in cough productive of small amounts of white frothy sputum. The first asthmatic paroxysm occurred in June 1934. Since then he had been troubled from June to October of each year. Grain dust and hay dust were thought to initiate respiratory symptoms. The past history was negative. A maternal uncle was known to have asthma.

When he was examined the patient was having a mild asthmatic attack. The pulse rate was 132 per minute, the respiratory rate 32 per minute and the blood pressure 116 systolic, 70 diastolic. His stature was average. The state of nutrition was good. Excessive lacrimation, seropurulent nasal discharge and a postnasal drip were present. Numerous musical râles and rhonchi were heard throughout the lung fields. No subcutaneous emphysema was present. The remainder of the physical examination was of no diagnostic significance.

During the first twenty-four hours in the hospital he was given N-methyl-cyclohexenylmethylmalonylurea, 260 mg. orally, and one subcutaneous injection of 0.3 cc. of epinephrine 1:1,000 solution. Following this medication, clinical manifestations of asthma were alleviated. Thirty-six hours after admission crepitation typical of subcutaneous emphysema was noted over the left anterior thorax from the midline to the posterior axillary line, in the left upper quadrant of the abdomen, in the axilla, and in the anterior and posterior triangles of the left side of the neck. He stated that he had no symptoms referable to this subcutaneous emphysema. He remained comfortable and had no further asthmatic attacks, and the respirations remained normal throughout the rest of his hospital stay. The clinical evidence of subcutaneous air gradually decreased and completely disappeared in four days. A check-up examination eighteen days later was entirely negative, and no further respiratory symptoms occurred during the interval.

The urinalysis was negative. The blood Kahn test for syphilis was negative. The blood count showed 15,000 white blood cells per cubic millimeter, with a 7 per cent eosinophilia on admission and 13,400 white blood cells with a 9 per cent eosinophilia four days later. Intradermal tests to a group of ninety-five foods, fifteen epidermals and forty miscellaneous inhalant allergens were nonreactive. Scratch tests to thirty-one pollens were negative with the exception of timothy and long and short ragweed, which were markedly positive. The Pirquet test with 0.1 cc. of old tuberculin 1:10,000 was negative. Sputum examination on admission showed Curschmann's spirals and many eosinophils in the (Wright) stained smear.




Roentgen appearance forty-eight hours after patient's admission. *a*, postero-anterior view; *b*, lateral view; c, right anterior oblique view. Arrows point to extravasated air.

A frontal stereoscopic film (*a* in the illustration) of the chest forty-eight hours after admission showed subcutaneous and subfascial emphysema of the left shoulder area. Air was present in the left side of the neck along the deep fascia extending into the mediastinum. The mediastinal emphysema was small in amount but particularly noticeable along the pericardium. There was air in the lower portion of the right side of the neck mesially. Lateral and right anterior oblique films (*b* and *c* in the illustration) demonstrated emphysema in the axillary fossa, around the acromion and the scapula on the left. In the mediastinum, air was visible anterior to the ascending arch of the thoracic aorta, over the pericardium in the superior mediastinum and posteriorly between the hilus and the aorta. Roentgen studies in all projections taken ten days after the appearance of emphysema were negative, showing complete absorption of the previously extravasated air.

### COMMENT

The mechanism of production of subcutaneous emphysema has been proposed by Kelman [2] as follows: Increased intrapulmonary pressure first causes a vesicular emphysema of the peripheral alveoli, which have less support from surrounding lung tissue than do the more central alveoli. Increased pressure may then cause a rupture of the distended marginal

From the Department of Internal Medicine, University of Michigan Medical School.

1. These include:
Watson, F. S.: Emphysema of Cellular Tissue Due to Asthma, Brit. M. J. **2**: 699 (Oct.) 1885.
Calverly, E. J. G.: Interstitial Emphysema Beneath the Deep Cervical Fascia as a Complication of Asthma, ibid. **2**: 1899 (Dec.) 1902.
Whitby, C. J.: Subcutaneous Emphysema in a Case of Spasmodic Asthma, ibid. **1**: 73 (Jan.) 1905.
Kahn, I. S.: Subcutaneous Emphysema in a Case of Bronchial Asthma, J. A. M. A. **88**: 1883 (June 11) 1927.
MacDermot, H. E.: Subcutaneous Emphysema in Asthma, Canad. M. A. J. **21**: 708 (Dec.) 1929.
Artagaveytia, A., and Zanzi, L. A.: Subcutaneous Emphysema in Course of Crisis of Asthma, Rev. d. tuberc. d. Uruguay **2**: 428 (Nov.) 1932.
Kruysveldt, C. S.: One Case of Widespread Emphysema of the Skin in Bronchial Asthma, Nederl. tijdschr. v. geneesk. **77**: 5380-5382 (Dec. 2) 1933.
Davidson, F. C.: Subcutaneous Emphysema in a Case of Bronchial Asthma, Lancet **1**: 1230 (June 9) 1934.
Pastorino, H.: Subcutaneous Emphysema and Pneumothorax as Complications of Asthma, Rev. d. tuberc. d. Uruguay **4**: 256 (Jan.) 1935.

2. Kelman, Sarah R.: Experimental Emphysema, Arch. Int. Med. **24**: 332 (Sept.) 1919.

vesicles, with an escape of air under the visceral pleura. Since the pleura offers greater resistance to escaping air than does the pathway along the blood vessels, the course of the air is directed toward the hilus. From the hilus the air follows the pleural reflections and enters the tissues of the anterior mediastinum. The air may then spread up or down, chiefly along the pathway of the great vessels. Joannides and Tsoulos,[3] on introducing air under pressure into the bronchi of dogs, found the weakest point of the lung to be at the hili where the visceral and parietal pleurae meet. Berkley and Coffen,[4] in a study of necropsy material of bronchopneumonia and generalized interstitial emphysema, described two routes for the escape of air from the lungs into the subcutaneous tissues. In the intrapleural route it was necessary for the air to escape through both the visceral and parietal pleurae. These authors felt that this was a rare pathway but could occur without pneumothorax when extensive adhesions were present. Mediastinal emphysema would not occur under these circumstances. In the more common extrapleural route, air coursed from the ruptured air sac along the blood vessels to the hilus, then to the posterior mediastinum and the anterior mediastinum, and then entered the subcutaneous tissues of the neck by following the blood vessel sheaths through the deep fascia. From these studies it would seem that, in the asthmatic patient, alveolar rupture could occur either at the hilus or at the periphery of the lung with migration of air through the tissues as described.

Alveolar rupture must be dependent on both increased intrapulmonary pressure and decreased strength of the alveolar walls. The asthmatic paroxysm alone will raise the intrapulmonary pressure, but additional coughing, straining or lifting is probably necessary to raise it to the point of alveolar rupture. The relatively rare occurrence of this complication in asthmatic patients, in spite of their violent respiratory effort, suggests that congenital or acquired weakness of the alveolar walls may be the more important factor. The age of the individual may be important in this phenomenon. The reported cases have occurred in young persons, from 8 to 25 years of age. It has occurred more often in patients having seasonal or infrequent attacks of asthma. The acuteness or severity of the attack and the sex of the patient are apparently of no significance.

Subcutaneous emphysema that occurs in asthma carries a good prognosis. No fatalities have been reported. The condition is self limited, with spontaneous recovery in from four to fourteen days. Treatment is entirely supportive.

SUMMARY

Subcutaneous emphysema is a rare complication of asthma. Only ten cases, including our own case, are known to us. The prognosis of the reported cases of subcutaneous emphysema, occurring in the asthmatic patient, is good.

## TORTICOLLIS OF UNUSUAL ORIGIN

LAURENCE H. MAYERS, M.D., CHICAGO

The patient here studied, a girl of 19, has had wry-neck since puberty. A unique feature of her condition is that she can straighten her head at will but can maintain the position only as long as she can hold her breath. She can neither breathe nor swallow when her head is in a natural position.

### REPORT OF CASE

*History.*—The patient's parents, concerned over her noticeable habit of carrying her head to the right, a defect so pronounced as to be a deformity, had consulted a surgeon, who advised an operation to correct the defect.

As a child the patient was normal. She was unusually active and her health was always good. The removal of adenoids when she was 7 years old was her only operation. Typhoid at the age of 10 was without after-effects. She menstruated at 12 and the following year she began gradually to gain in weight. At 14 she had measles.

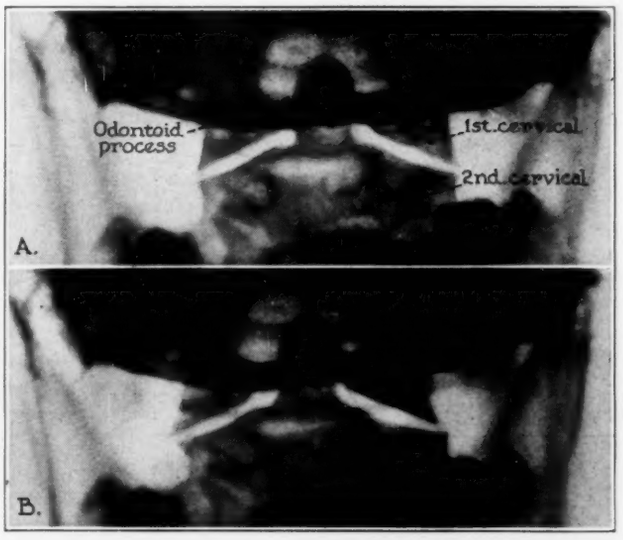
It was at the age of 14 that the patient became conscious of a tendency of the head to incline to the right. There was no acute pain, and the inclination of the head came on gradually. In a few months the condition became more pronounced, but still the pain was not acute. At this time she was still in school and states that she was more conscious of the condition after exercise.

When she was 17 the condition of the neck became so annoying that a physician was consulted. He informed her that she had wry-neck and prescribed a tonic and calcium. These were without effect. A little later her parents took her to another physician, who recommended sun lamp treatments three times a week for several weeks. Again there was no relief and a consultation followed. The consultant prescribed stretching treatments and massage and by these she was greatly benefited.

At the present time the patient's life is routine and not at all strenuous. She sleeps well and her habits are wholesome.

*Examination.*—It was observed that the patient could straighten her head when she so desired but could not hold it long in that position. When it was held straight by force, she jerked it away. When asked why she did so she replied "So I can breathe." It was then discovered that she could neither breathe nor swallow when her head was in the natural position; that is, when her neck was straight. An injury was indicated, but of such an occurrence the patient had no knowledge.

The mother was appealed to and an accident at birth was recalled. This was a breech presentation with forceps on the aftercoming head. The child had difficulty in breathing for several days and the attendants at times thought she would not survive. However, these difficulties were soon forgotten. The child's head kept its normal position until puberty, when the increase in weight already mentioned began.




*A*, normal odontoid centrally located and symmetrical alinement of first and second cervical vertebrae. *B*, odontoid displaced to the right and asymmetrical alinement of lateral vertebral margins.

Several roentgenograms of the cervical spine had previously been taken but there were no abnormalities. These, however, had not included a picture of the odontoid process. A roentgenogram was made of this process, which revealed that the odontoid process was shifted to the right.

### COMMENT

Several circumstances about this case are unique. The patient was not seeking relief for herself; her parents were trying to correct the condition because of the girl's appearance.

It is unusual to see a deformity of this nature in which the patient can straighten her head by her own efforts but can maintain the position only for as long as she can hold her breath.

It is interesting also to note that the girl cannot swallow when her neck is straight but has to turn her head sidewise in order to swallow.

The history of the injury was given as an afterthought, the patient never having heard of the accident. The head remained straight until puberty, and during this time there was a sudden increase of weight. Growth was rapid and weight reached 160 pounds (72.6 Kg.) at the age of 14 years.

3. Joannides, Minas, and Tsoulos, G. D.: Etiology of Interstitial and Mediastinal Emphysema, Arch. Surg. **21**: 333-339 (Aug.) 1930.

4. Berkley, H. K., and Coffen, T. H.: Generalized Interstitial Emphysema and Spontaneous Pneumothorax as Complications of Bronchopneumonia, J. A. M. A. **72**: 535 (Feb. 22) 1919.

From the Department of Internal Medicine, Northwestern University Medical School.

In my opinion, the turning of the head at this age, making swallowing and breathing possible only when the head is inclined to the right, is the result of sudden changes in the structure of the neck during adolescence, especially the growth of the thyroid. The routine x-ray examination did not reveal the pathologic condition because the odontoid process was not included in the field.

Whether the explanation offered is right or wrong does not interfere with or alter the treatment. The one purpose it served was to prevent an operation that was doomed to failure.

180 North Michigan Avenue.

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## VISUALIZATION OF THE AMOUNT OF RESIDUAL URINE

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Since the introduction of excretory urography, a simple method of demonstrating the ability of the bladder to empty its contents has become available. An adequate kidney function is necessary, so that the concentration of the excreted opaque material will give a fairly clear cystogram. Owing to the fact that an excretory urogram is indicated in all obstructive conditions at the neck of the bladder to determine the physiologic and anatomic state of the upper urinary tract, no additional measures are necessary to visualize the ability of the bladder to empty itself.

Before taking the last roentgenogram, the patient is allowed to void as completely as possible, and then the picture is taken and a graphic expression of the residue left in the bladder after voiding is obtained. This simple procedure avoids all instrumental interference with the bladder, avoids the dangers of infection, trauma of too sudden emptying of the organ and the occasional complete obstruction that follows the passing of a catheter. Even though one does not obtain an accurate quantitative measure of the residual amount, it gives a sufficiently clear picture to allow the student to obtain a satisfactory idea of the amount of residue and the topography at the neck of the bladder, without applying any measures other than excretory urography (figures 1 and 2). This procedure has been adopted as a routine in my service for all patients, usually males, suffering from symptoms that are suggestive of bladder neck obstruction.

Fig. 1.—Cystogram produced by excretion urography.

Fig. 2.—Residual hippuran (sodium orthoiodohippurate) in bladder following voiding.

Fig. 3.—Excretory cystogram before voiding, showing stone within bladder shadow.

Fig. 4.—Excretory cystogram before voiding, showing stone within bladder shadow.

Fig. 5.—Excretory cystogram after voiding, showing small amount of residual urine, producing crescentic shadow outlining large intravesical prostate.

Fig. 6.—Excretory cystogram after voiding, showing small amount of residual urine, producing crescentic shadow outlining large intravesical prostate.

45 East Eighty-Fifth Street.

## *Special Article*

# THE PHARMACOPEIA AND THE PHYSICIAN

## LOCAL MEDICATION OF THE UPPER RESPIRATORY TRACT

CLYDE A. HEATLY, M.D.
ROCHESTER, N. Y.

*This is one of a series of articles written by eminent clinicians for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and* THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

The use of local medications by the general practitioner in the treatment of diseases of the upper respiratory tract should be restricted for the most part to acute infections. It is to be emphasized that attempts to treat chronic disorders by such measures are fraught with serious danger until the diagnosis of the underlying pathologic condition has been thoroughly established. This as a rule requires examination by a specialist in this field. All too frequently cases are encountered in which local medications have been carried out over long periods before a serious underlying infection or new growth has been discovered. The resulting loss of time commonly leads to serious or even fatal consequences.

### ACUTE RHINITIS

The ideal therapeutic aims of local medication in acute rhinitis are the reduction of nasal congestion, the promotion or restoration of ciliary function and the destruction of pathogenic organisms. Recent experimental studies by Proetz,[1] Lierle and Moore,[2] Fenton and Larsell [3] and other workers have demonstrated that many of our accepted local preparations are actually destructive to epithelium and favor infection by impairing ciliary activity. In the light of these investigations ephedrine sulfate (from 0.5 to 3 per cent solutions with 1 per cent as the usual strength) in physiologic solution of sodium chloride most closely meets the ideal therapeutic requirements by producing prompt relief of congestion without slowing the ciliary activity or destroying the epithelium. The commonly used nasal oils, containing liquid petrolatum, eucalyptol, menthol, camphor and thymol, all definitely slow or paralyze ciliary activity despite their recognized soothing properties. As vehicles for ephedrine, therefore, they would appear from these studies actually to lessen its therapeutic value. The commonly used silver colloids mild protein silver and neosilvol (10 per cent solutions) have been found experimentally by McMahon [4] and by Fenton and Larsell to destroy epithelium and to impair ciliary action. Nevertheless they will continue to be widely used for their recognized empirical value. Merthiolate (1:5,000 solution) is commonly combined with ephedrine solutions for its antiseptic properties, but it also has a paralyzing effect on cilia. It is thus evident that many commonly used preparations may combine desirable with at least experimentally proved undesirable effects on the nasal mucous membranes. Epinephrine even in a dilution of 1:5,000 causes a slowing of ciliary activity. Furthermore, the marked congestion that follows its transient vasoconstricting action has led most rhinologists to abandon its use in acute rhinitis. It should be emphasized that nasal solutions containing menthol should never be employed in infancy because of their possible toxic effect. The indiscriminate use of liquid petrolatum as nasal drops in infancy is not entirely without danger in view of the numerous reported cases of lipoid pneumonia from accidental inhalation. The usefulness of nasal drops will be increased by bending the head backward in the Proetz position or in the lateral head-low position described by Parkinson.[5] The use of nasal douches is not recommended in acute rhinitis because of the possibility of inducing an otitis media. Bland ointments of zinc or boric acid are soothing when troublesome irritation of the nasal vestibule and upper lip is present.

### CHRONIC RHINITIS

Chronic rhinitis includes such a wide variety of causes that careful study by a competent rhinologist is required before treatment can be outlined. A chronic discharge may be caused by sinusitis, infected adenoids, polyps, foreign bodies or malignant growths. It may be a local manifestation of constitutional disease, such as congenital syphilis or diphtheria, or the result of atrophic or hypertrophic changes in the nasal mucous membranes. Successful management commonly requires surgery or special types of treatment, and simple local medication consequently plays a relatively minor rôle. Certain preparations are commonly used in this work. Oily solutions containing menthol and camphor (1 per cent) in liquid petrolatum reduce congestion and lessen irritation (prescription A). Mild protein silver or neosilvol (10 per cent) are probably the most commonly used antiseptics for tamponage. Under certain conditions, notably atrophic rhinitis, stimulating topical applications are of value. Among the best may be mentioned Mandl's solution (potassium iodide 1 Gm., iodine 0.46 Gm., and sufficient glycerin to make 30 cc.); ichthammol mixtures (ichthammol 1.3 Gm., menthol 0.2 Gm. and sufficient petrolatum to make 30 Gm.); tannic acid in glycerin (glycerite of tannic acid 60 cc., glycerin 30 cc.) and prescription B. Where bleeding areas occur, a bead of silver nitrate or chromic acid makes an excellent cauterant. Trichloroacetic acid

*A. Menthol and Camphor in Oil*

| | | |
|---|---|---|
| ℞ | Menthol | 0.3 Gm. |
| | Camphor | 0.2 Gm. |
| | Oil of Cinnamon | 0.2 cc. |
| | Liquid Petrolatum | 30.0 cc. |
| M. | Label: Nasal drops or spray twice daily. | |

*B. Compound Glycerite of Iodine, Camphor and Menthol*

| | | |
|---|---|---|
| ℞ | Camphor | 1.0 Gm. |
| | Menthol | 1.0 Gm. |
| | Tincture of Iodine | 4.0 cc. |
| | Alcohol | 8.0 cc. |
| | Glycerin, q. s. | ad 30.0 cc. |
| M. | Label: Local application. | |

From the Division of Otorhinolaryngology, the University of Rochester School of Medicine and Dentistry.

1. Proetz, A. W.: Effects of Certain Drugs on Living Nasal Ciliated Epithelium, Ann. Otol., Rhin. & Laryng. **43**: 450 (June) 1934.

2. Lierle, D. M., and Moore, P. M.: Effects of Drugs on Ciliary Activity of the Mucosa of the Upper Respiratory Tract, Arch. Otolaryng. **19**: 55 (Jan.) 1934.

3. Fenton, R. A., and Larsell, Olof: Experimental and Clinical Study of Histocytes in Acute and Chronic Inflammation of the Nasal Accessory Sinuses, Laryngoscope **43**: 233 (April) 1933.

4. McMahon, B. J.: Effects of Ionization of the Mucosa of the Frontal Sinuses of Dogs, Ann. Otol., Rhin. & Laryng. **43**: 643 (Sept.) 1934.

5. Parkinson, S. K.: A Lateral Head-Low Position for Nasal and Sinus Treatment, Arch. Otolaryng. **17**: 787 (June) 1933.

may be similarly used. Preliminary cocainization will be required for this as well as for many surgical procedures. Cocaine hydrochloride solution of suitable strength is usually employed. It should not be used in children and should always be applied with caution because of the alarming or even fatal reaction that may follow in sensitive individuals. It has been established that preliminary medication before the use of cocaine greatly lessens its toxic effects. Morphine (from 0.01 to 0.016 Gm.) with atropine sulfate (from 0.00065 to 0.0004 Gm.) may be given thirty minutes before operations in which it is used. The barbiturates (barbital 0.65 Gm., phenobarbital 0.2 Gm. or pentobarbital 0.1 Gm.) given by mouth one hour before are also effective in lessening possible toxic effects. Pantocain has in my experience proved to be a safe and effective substitute for surface anesthesia in children. Nasal irrigations, carefully given, may prove of value in certain conditions, such as atrophic rhinitis. Mixtures containing salt, soda, and dextrose (1 teaspoonful of each in a pint of warm water) are commonly used. Hydrogen peroxide is helpful in such cases in loosening the crusts, preliminary to their removal by irrigation. Tampons moistened with peroxide may also prove useful in controlling epistaxis.

### ACUTE INFECTION OF THE THROAT

Acute infections may attack the throat in the form of an acute pharyngitis or more diffusely as an acute tonsillitis of the catarrhal or follicular variety. Sometimes the staphylococcus or pneumococcus is responsible but as a rule the streptococcus is the causative organism. Most of the severe cases, especially the epidemic septic type, are due to the beta-hemolytic variety. The throat is affected in many acute diseases, notably scarlet fever, measles, diphtheria, Vincent's infections or the secondary stages of syphilis. Acute inflammation followed by ulceration may result from granulocytopenia or acute leukemia and the true cause be overlooked, especially in the early stages, unless a leukocyte count is made. It is evident therefore that careful diagnosis supported by laboratory studies is necessary for successful therapeutic management.

### LOCAL TREATMENT

In the early stages of acute pharyngitis the local application of silver nitrate (from 5 to 20 per cent), mild protein silver (10 or 20 per cent) or Mandl's solution often gives relief. Vigorous swabbing, however, should be avoided. Gargles, so frequently prescribed, are often useless, especially in children, because the contraction of the tongue and pharyngeal muscles prevents the solution from reaching the inflamed parts. They may, however, be used in the form of salt and soda, one-half teaspoonful each in a glass of warm water or Dobell's solution, 2 tablespoonfuls in a glass of warm water. In the more severe infections the use of hot salt and soda irrigations will be more effective. Lozenges containing small quantities of menthol, camphor, guaiac and codeine, orthoform tablets or calcidin-anesthesin troches lessen the discomfort in mild cases.

In acute tonsillitis the most effective local treatment consists in irrigation of the throat every two hours with a warm solution containing 1 teaspoonful of sodium chloride and sodium bicarbonate in 1 pint of water. Warm glucose solution (50 per cent) made with "Corn Syrup" 1 part and water 2 parts is also effective. The patient's head should be inclined forward with the mouth open so as to facilitate the flow. When irrigations are not possible nor well tolerated a similar warm solution of salt and soda, potassium permanganate (1:5,000 solution) or acetylsalicylic acid (five tablets crushed in a glass of water) may be used as a gargle.

*C. Compound Glycerite of Iodine*

| | | |
|---|---|---|
| ℞ | Iodine | 0.5 Gm. |
| | Potassium Iodide | 1.6 Gm. |
| | Oil of Peppermint | 0.5 cc. |
| | Glycerin ad | 30.0 cc. |
| M. | Label: Topical application. | |

The practice of frequent and vigorous swabbing is decidedly not recommended. Semisuspension by raising the head by means of the hands placed over each mastoid process may be employed effectively to permit swallowing when severe dysphagia is present.

### FUSOSPIROCHETAL ANGINA (VINCENT'S ANGINA)

The common acute infectious disease fusospirochetal angina is due to a symbiosis of organisms including a fusiform bacillus, a widely coiled spirochete (Spirochaeta vincenti), a vibrio and a coccus. These organisms are anaerobic and commonly multiply in the crevices about the teeth, in pockets under the gums or in the depths of the tonsillar crypts. Pathologic studies indicate that the spirochete penetrates deeply, produces the often extensive destruction of tissue characteristic of the lesion and is the chief agent responsible for the spread of the disease. The bacillus predominates in the more superficial zone and produces the fetor. Since the causative organisms are anaerobic, the fundamentals of treatment require open drainage with free access of air, the local application of oxidizing agents and local or general arsenic therapy to destroy the spirochetes.

A survey of the literature indicates that in the mild or diphtheroid type of lesion any antiseptic will cure. Silver nitrate (from 10 to 20 per cent), tincture of iodine, chromic acid (5 per cent), copper sulfate (10 per cent), gentian violet, methylene blue, acriflavine base and mercurochrome have all been used successfully in this type of lesion. For the more severe and widespread infections, however, active oxidizing agents and spirocheticides are essential. The external necrotic layer should be gently removed with a swab soaked with hydrogen peroxide. A fresh swab saturated with solution of potassium arsenite or arsphenamine in glycerin (10 per cent solution) should then be carefully applied over the diseased area. The patient may be given a small quantity of either of these preparations with instructions to apply them locally at four hour intervals. Sodium perborate has also proved effective, used frequently in saturated solution as a gargle or in cases of stomatitis as a thick paste mixed with water and followed by rinsing the mouth with warm water about five minutes later. In particularly severe cases or in those which fail to respond to local treatment within seventy-two hours, an intravenous injection of neoarsphenamine is advised. Intravenous therapy is especially indicated when there is an associated bronchitis suggesting an extension of the infection to the lower respiratory tract. Bismuth preparations, notably bismuth and sodium tartrate in 1.5 per cent glycerinate solution for topical application and 1.5 per cent aqueous solution for intramuscular use or bismuth tartrate in the form of a salve emulsion (30 per cent), used daily, have been enthusiastically advocated by certain European and South American observers as being more sedative, less

toxic and more powerful than the arsphenamine group. Strict precautions should be urged in order to protect other members of the household from the infection.

### ACUTE LARYNGITIS

The therapeutic indications in acute laryngitis require the control of inflammation, the release of spasm (which so commonly characterizes this malady in early childhood), and the relief of obstructive dyspnea. The latter symptom is of course limited to severe infections and may require intubation or tracheotomy. The possibility of laryngeal diphtheria must be carefully investigated in all cases. The closed lymphatic system of the interior of the larynx limits absorption and accounts for the relatively mild constitutional reaction that is commonly present.

Complete rest in a warm room with even, moist temperature (70 F.) is essential to prompt control of the infection. Vocal rest also is important. Steam inhalations to which compound tincture of benzoin (1 teaspoonful to a pint of water) is added constitute the most helpful local treatment. Menthol (0.65 Gm.) may be similarly employed (prescription D). These may be given directly at three hour intervals and a steam kettle should be kept going constantly in the room. A croup tent is most effective in young children. Hot applications are beneficial, especially when a tendency to spasm is present. Cold applications may be soothing in adults when tenderness over the larynx is noted. Irritative

*D. Mixture of Menthol, Camphor, Pine Oil and Eucalyptus*

℞ Menthol .....
Camphor .....āā 15.0 Gm.
Oil of Dwarf Pine Needles.....
Oil of Eucalyptus.....āā 30.0 cc.
M. Label: 1 teaspoonful in 1 pint of water—steamed and inhaled.

cough should be controlled by small doses of codeine sulfate. Small doses of phenobarbital are also of value in young children. When laryngeal spasm is present (croup), relaxation may be further aided by the use of emetics. For a child of 2 years, for example, syrup of ipecac, one-half teaspoonful every fifteen minutes until vomiting occurs, is the safest drug. Smaller doses (5 drops every two hours) may help to reduce the recurrence of spasm without causing emesis. Concomitant infection in the nose or throat requires appropriate local treatment. The diet should be light and fluids should be forced freely. Swabbing of the larynx may cause alarming spasm and should be avoided.

Chronic hoarseness should never be treated by the general practitioner. A serious lesion may otherwise pass unrecognized with disastrous results.

### DISEASES OF THE EAR

Few ear conditions are suitable for treatment by the general practitioner. In acute external otitis (boils) the external auditory canal may be gently cleaned with alcohol and then packed lightly with a narrow gauze

*E. Diluted Solution of Aluminum Acetate*

℞ Burow's solution ..... 60.0 cc.
Water ..... 120.0 cc.
M. Label: Drop warmed solution in canal every 2 hours or apply on gauze wick.

wick soaked with aluminum acetate (saturated solution), ichthammol in glycerin (10 per cent) or mercresin (prescriptions E, F and G). Heat should be applied as constantly as possible and gives great relief. Vaccines may be of value in recurrent cases. Fungus infections (otomycosis) are best controlled by daily instillations of a 2 per cent solution of salicylic acid in alcohol (70 per cent) together with the administration of potassium iodide by mouth. Infections caused by Bacillus pyocyaneus respond to acetic acid (2 per cent solution). When earache is due to an acute catarrhal

*F. Glycerite of Phenol and Ichthammol*

℞ Phenol ..... 0.65 Gm.
Ichthammol ..... 7.5 Gm.
Glycerin ..... 30.0 cc.
M. Label: Drop into canal every two hours or apply directly by means of gauze packing.

*G. Ointment of Salicylic Acid and Sulfur*

℞ Salicylic Acid .....
Precipitated Sulfur .....āā 0.6 Gm.
Petrolatum .....ad 30.0 Gm.
M. Label: Apply locally.

inflammation of the tympanic membrane, warm drops of phenol in glycerin (from 5 to 10 per cent solution) repeated if necessary at three hour intervals for two or three doses often give relief.

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# Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS ADOPTED THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

## PORTABLE BOVIE SURGICAL UNIT ACCEPTABLE

Manufacturer: The Liebel-Flarsheim Company, Cincinnati.

This unit is a simple, efficient equipment designed for electrosurgery. It is mounted in a sturdy cabinet of walnut finish. The unit has a four gap circuit, multiple connections for operating instruments, a current selector switch, sterilizable control handles, instruments and instrument rack.

Fig. 1. — Portable Bovie Surgical Unit.

The firm submitted performance tests on this machine showing that the machine had been operated intermittently for one-half hour. The temperature rise of the transformer and spark gap was within the limits of safety established by the Council. The Council's investigator confirmed the evidence submitted by the manufacturer.

The firm has also informed the Council that this unit is identical to the Junior Bovie Electro-Surgical Unit, already accepted, except that the portable model is slightly more powerful. It is not equipped for medical diathermy.

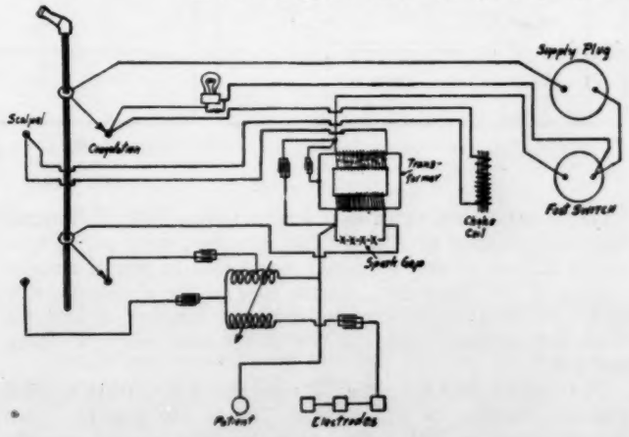


Fig. 2.—Schematic diagram of circuit.

The Council on Physical Therapy voted to include the Portable Bovie Surgical Unit in its list of accepted devices.

## FISCHER MODEL "SWDI" SHORT WAVE APPARATUS ACCEPTABLE

Manufacturer: H. G. Fischer & Company, Chicago.

This device is recommended for medical and surgical diathermy. It produces a high frequency electric current suitable for generating heat locally within the body tissues, and it may also be used for electrosurgery. The device is obtainable in wavelenghs of 6, 12, 18 or 24 meters. If the physician desires, the wavelength may be changed merely by substituting a different oscillator unit, an operation requiring only a few minutes.

The electric field method or the electromagnetic induction method of application may be practiced with this short wave diathermy. The electrodes or applicators furnished with the apparatus consist of cuffs, pads and insulated cable. The circuit is of a well known type having two oscillator and two rectifier tubes. The patient's circuit is inductively coupled to the tank circuit. A variable condenser is used to tune the patient's circuit to electrical resonance. When this machine is operated under full load, it draws not more than 1,000 watts. Since no reliable method has been proposed to measure the output of energy available to the patient, this value is not given.

Fig. 1.—Fischer Model "SWDI" Short Wave Apparatus.

When making application for consideration, the manufacturer submitted evidence substantiating the heating ability of the unit. Observations were taken using 6, 12, 18 and 24 meter high frequency energy for both electric and electromagnetic field methods. For the electric field method, cuffs were applied to the thigh—one posterior to the hip and the other anterior to the knee. The cuff electrodes used in the investigation were made of metal surrounded by thick protecting rubber. Several layers of toweling or felt, or both materials, were placed next to the skin to absorb perspiration and also to permit suitable spacing of the electrodes. In the case of the electromagnetic field method, a heavy insulated coil was wrapped around the thigh and separated from the skin by one-half inch of toweling and felt.

The human subjects were all vigorous, adult, male medical students, ranging in weight from 150 to 180 pounds. Two trocars placed in hard rubber cannulas were inserted into the thigh. One was introduced at right angles to the thigh and straight down into the depth of the muscle tissue until the instrument was at an approximate depth of 2 inches or until the femur was encountered. The second was introduced as nearly parallel to the skin as possible and subcutaneously at an approximate depth of one-eighth inch. The trocars were removed, leaving the rubber cannula in situ. Temperature measurements were taken by means of thermocouples of the hypodermic needle type and introduced through the cannulas. The third thermocouple placed on the skin surface underneath the cuffs was used to measure skin surface temperature. Cold junctions were immersed in ice enclosed in a quart vacuum bottle. The readings were observed on a Leeds and Northrup Portable Potentiometer. The thermocouples were calibrated in degrees Fahrenheit, against a Bureau of Standards thermometer. Initial temperatures were taken and then each subject was submitted to a twenty-minute application of short wave diathermy energy of maximum current strength at his tolerance. At the end of this period, the temperatures were again recorded. Temperatures were observed at intervals of one minute until the temperature began to drop. The highest temperature attained was recorded as the final temperature in each instance. Then the thigh was permitted to cool until the temperature dropped to or near the initial temperature and the observation repeated with a different unit. Each temperature reading in the table is the average of six observations.

*Results of Observations*

| Technic | Wavelength | Muscle Temperature Initial | Muscle Temperature Final | Subcutaneous Temperature Initial | Subcutaneous Temperature Final | Skin Surface Temperature Initial | Skin Surface Temperature Final | Oral Temperature Initial | Oral Temperature Final |
|---|---|---|---|---|---|---|---|---|---|
| Cuff | 24 | 99.55 | 104.27 | 95.85 | 102.85 | 91.73 | 98.20 | 98.53 | 99.03 |
| Coil | 24 | 99.97 | 106.05 | 97.72 | 105.85 | 96.08 | 98.71 | 98.77 | 99.60 |
| Cuff | 18 | 100.05 | 105.73 | 97.03 | 103.35 | 92.52 | 97.98 | 98.35 | 99.08 |
| Coil | 18 | 97.98 | 106.72 | 94.82 | 105.77 | 93.62 | 99.58 | 98.70 | 99.35 |
| Cuff | 12 | 100.13 | 106.45 | 97.48 | 103.98 | 93.13 | 98.42 | 98.80 | 99.66 |
| Coil | 12 | 99.73 | 106.60 | 97.33 | 105.83 | 94.55 | 99.37 | 98.67 | 99.60 |
| Cuff | 6 | 99.93 | 106.58 | 97.12 | 103.68 | 93.33 | 98.40 | 98.50 | 99.07 |

Data on the temperature rise when pad or air-gap electrodes were employed were not submitted. The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. The shipping weight of the apparatus is about 170 pounds.

The unit was investigated in a clinic acceptable to the Council under actual clinical conditions. There did not appear to be any appreciable advantage of one wavelength energy over another of those four wavelengths investigated when the cuff or coil technic was used. The six meter wavelength is not adaptable for coil technic. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is much less than with conventional diathermy.

Evidence was presented by the firm to substantiate the claims made for hyperpyrexia.

The machine was installed in a clinic acceptable to the Council and operated under actual clinical conditions. It was reported

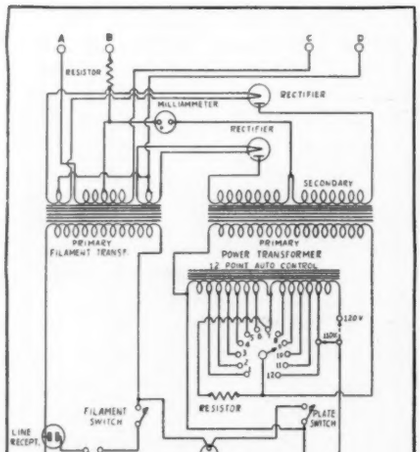


Fig. 2.—Fischer "SWDI" power unit.

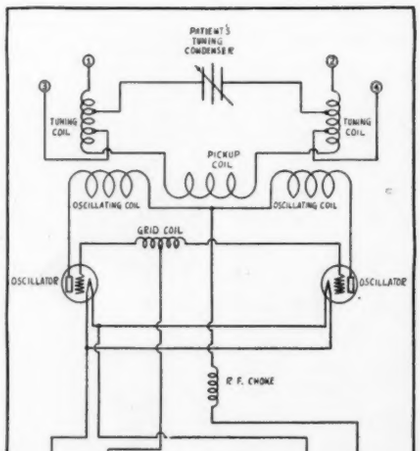


Fig. 3.—Fischer "SWDI" 6 oscillator unit.

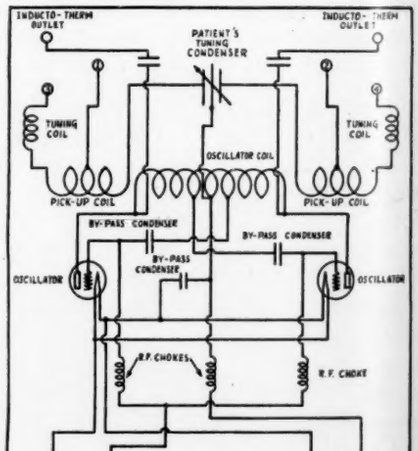


Fig. 4.—Fischer "SWDI" 12, 18 and 24 oscillator unit.

as giving satisfactory service. In view of the favorable report based on the performance of this unit when cuff electrodes or coil technic was used, the Council on Physical Therapy voted to include the Fischer Model "SWDI" (6, 12, 18 and 24 meter) Short Wave Apparatus in its list of accepted devices.

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# Council on Pharmacy and Chemistry

## REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

### KONSYL NOT ACCEPTABLE FOR N. N. R.

Konsyl, which is stated to be "the gelatinous-forming part of Plantago Ovata" prepared by mechanical removing of the psyllium seed coating, was presented for the Council's consideration by National Vaccine and Antitoxin Institute, Washington, D. C., in 1934. Soon thereafter the Council was notified that the firm name had been changed to Burton, Parsons & Co.

The first question considered by the Council was the eligibility of the product for a proprietary name. The Council held that there was not sufficient evidence to show eligibility of a preparation of psyllium seed, deprived of the greater part of its oil and woody fiber, to the use of a coined proprietary name.

The firm submitted an advertising circular which the Council found to contain various unwarranted claims. When these were reported to the firm, it sent a revised circular from which the specific claims objected to were deleted. The firm, however, offered no adequate evidence to justify the use of a coined proprietary name for this product. For this reason, the Council declared Konsyl unacceptable for inclusion in New and Nonofficial Remedies.

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## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

**PERCOMORPH LIVER OIL.—Oleum Percomorphum.**—A mixture containing the fixed oils obtained from the fresh livers of the percomorph fishes, principally Xiphias gladius, Pneumatophorus diego, Thunnus thynnus and Stereolepis gigas —sometimes also Neothunnus macropterus, Katsuwonus pelamis, Sarda chiliensis, Germo alalunga, Thunnus orientalis, Scomber scombrus, Seriola dorsalis, Lutianus campechanus, Epinephelus morio, Roccus lineatus, Cynoscion nobilis, Eriscion macdonaldi, Epinephelus analogus, Stereolepis ishinagi and Sphyraena argentea, containing 50 per cent of cod liver oil. It is biologically assayed to have a potency of not less than 60,000 units of vitamin A (U. S. P.) per gram and of not less than 8,500 units of vitamin D (U. S. P.) per gram.

*Actions and Uses.*—Same as those of cod liver oil. See General Article Cod Liver Oil and Cod Liver Oil Preparations, N. N. R. 1936, p. 449.

*Dosage.*—Prophylactic, for normal infants 10 drops daily; curative, and in severe conditions, to 20 drops daily. The product is marketed with a dropper designed to deliver 3 drops to the minim.

Percomorph liver oil, 50%, in cod liver oil, is a yellow to brownish yellow, oily liquid. It has a slightly fishy but not rancid odor and a fishy taste. It is slightly soluble in alcohol but is soluble in ether, chloroform, benzene, carbondisulfide and ethyl acetate. The specific gravity is from 0.922 to 0.930 at 25 C. The refractive index is from 1.480 to 1.485 at 20 C.

A solution of one drop of the oil in 1 cc. of chloroform, when shaken with one drop of sulfuric acid, acquires a blue color, changing to violet, dark green, and finally brown. Treat 5 cc. of oil with 5 cc. of benzene and centrifugate for twenty-five minutes at 25 C.; no precipitate forms and a clear solution remains.

Fill a tall, cylindric, standard oil-sample bottle of about 120 cc. capacity with percomorph liver oil, 50%, in cod liver oil, at a temperate between 23 and 28 C., stopper, and immerse the bottle in a mixture of ice and distilled water for five hours: the oil remains fluid and forms no deposit.

Dissolve 2 Gm. of percomorph liver oil, 50%, in cod liver oil in 20 cc. of a mixture of equal volumes of alcohol and ether, which previously has been neutralized with tenth-normal sodium hydroxide, using 5 drops of phenolphthalein T. S. as indicator, and titrate with tenth-normal sodium hydroxide to the production of a pink color which persists for fifteen seconds: not more than 1 cc. of tenth-normal sodium hydroxide is required (*free acid*). The amount of unsaponifiable matter as determined by the method of U. S. P. XI, page 446, is not less than 3.5 per cent nor more than 7 per cent (it is semisolid in appearance). The saponification value as determined by the method of U. S. P. XI, page 445, is not less than 174 and not more than 186. The iodine value as determined by the method of U. S. P. XI, page 445, on 0.18 to 0.20 Gm. of sample, accurately weighed, is not less than 145 and not more than 180.

The undiluted fixed oil obtained from the fresh livers of the percomorph fishes and used in the preparation of percomorph liver oil 50 per cent in cod liver oil conforms to the following constants as determined by methods of U. S. P. XI: specific gravity, from 0.924 to 0.930 at 25 C.; refractive index, from 1.484 to 1.490 at 20 C.; free acid in 2 Gm., equivalent to not more than 1 cc. of tenth-normal sodium hydroxide; unsaponifiable matter, not less than 7 nor more than 13 per cent (semi-solid in appearance); saponification value, not less than 168 nor more than 182; iodine value, not less than 145 nor more than 180.

**Mead's Oleum Percomorphum.**—A brand of percomorph liver oil-N. N. R.

Manufactured by Mead Johnson & Co., Evansville, Ind. No U. S. patent or trademark.

*Mead's Oleum Percomorphum, 50% (In Capsules):* Each capsule contains 10 drops (0.222 Gm.) of Mead's Oleum Percomorphum, 50%, representing a vitamin potency of not less than 13,300 vitamin A units and 1,850 vitamin D units, U. S. P.

**COD LIVER OIL** (See New and Nonofficial Remedies, 1936, p. 450).

**Mead's Standard Cod Liver Oil** (formerly Mead's Newfoundland Cod Liver Oil) (See New and Nonofficial Remedies, 1936, p. 451).

The following dosage form has been accepted:

*Mead's Cod Liver Oil Fortified with Percomorph Liver Oil.*—A mixture of cod liver oil-U. S. P. and percomorph liver oil 5 per cent. It has a potency of not less than 6,000 vitamin A units (U. S. P.) per gram and of not less than 850 vitamin D units (U. S. P.) per gram.

**AZOCHLORAMID** (See New and Nonofficial Remedies, 1936, p. 228).

The following dosage form has been accepted:

*Azochloramid Solution in Triacetin 1:125:* A solution containing Azochloramid 1 Gm. in 125 Gm. of triacetin (triacetin, a mixture containing approximately 95 per cent glyceryl triacetate ($CH_2OOCCH_3$.$CHOOCCH_3$.$CH_2OOCCH_3$) for use in the preparation of azochloramid in olive oil 1: 2,000 (one volume of azochloramid in triacetin 1: 125 diluted with 15 volumes of olive oil).

**DIPHTHERIA ANTITOXIN, BOVINE.**—An antitoxin differing from diphtheria antitoxin-U. S. P. in that it is made from the serum of cattle instead of from horse serum and is less potent.

Mulford Biological Laboratories, Sharp & Dohme, Inc., Philadelphia and Baltimore.

*Diphtheria Antitoxin (Bovine).*—An antitoxin derived from the blood serum of cattle immunized against diphtheria toxin. Diphtheria antitoxin (bovine) serves as an alternative to diphtheria antitoxin (equine) in the treatment of individuals giving a positive reaction to the ophthalmic test with diphtheria antitoxin prepared from horse serum. Marketed in packages of one 30 cc. ampule vial containing 5,000 units.

**POLLEN ANTIGENS-LEDERLE** (See New and Nonofficial Remedies, 1936, p. 35).

The following additional product, supplied in five vial packages representing series A, B, C and F as described in New and Nonofficial Remedies 1936, page 35, and in packages of three 3 cc. vials containing 100, 1,500 and 20,000 pollen units per cubic centimeters, respectively, has been accepted:

*Mixed Grasses Pollen Antigen-Lederle (June Grass, Orchard Grass, Sweet Vernal Grass, Red Top and Timothy, in equal parts).*

The following additional dosage form has been accepted:

*Ragweed Combined Pollen Antigen-Lederle:* Also marketed in packages of three 3 cc. vials containing 100, 1,500, and 20,000 pollen units per cubic centimeter, respectively.

**CONCENTRATED POLLEN ANTIGENS-LEDERLE** (See New and Nonofficial Remedies, 1936, p. 32).

The following additional product, supplied in five syringe packages representing series A, B, C and F as described in New and Nonofficial Remedies 1936, page 32, has been accepted:

*Mixed Grasses Concentrated Pollen Antigen-Lederle (June Grass, Orchard Grass, Sweet Vernal Grass, Red Top and Timothy, in equal parts).*

**PARATHYROID EXTRACT-LILLY** (See New and Nonofficial Remedies, 1936, p. 327).

The following dosage form has been accepted:

*Parathyroid Extract-Lilly, 1 cc. Ampules:* Each cubic centimeter contains 100 units.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 5, 1936

## UTILIZATION OF DIFFERENT FORMS OF IODINE

Different forms of a number of dietary constituents are utilized with varying degrees of efficiency. Certain iron compounds, for example, are easily available to the organism and are well utilized for the formation of hemoglobin, whereas certain others are poorly utilized. Similar differences have been observed with respect to compounds of calcium and of copper. Because of the well known importance of iodine in animal nutrition, the problem of the relative efficiency of utilization of different forms of this element have received some attention. One of the earliest studies of the question [1] was made on a human subject consuming a diet low in iodine. The amounts of iodine retained in the body were determined by the "balance" method following the oral administration of various iodine-containing substances. The retention of iodine was found to be highest when this substance was supplied in the form of iodine-containing fats (liver oil) or potassium iodide; somewhat poorer retention was observed if iodine was supplied in the form of green vegetables (watercress or spinach) or sardines. Although this work may be open to possible criticisms with respect to the methods employed, there is nevertheless a definite indication that different forms of iodine are available to the organism in varying degrees.

Recently the problem has been reinvestigated in the rat [2] and in the laying hen.[3] In the former study, animals were fed a basal diet which uniformly produced goiter because of its low iodine content. The various iodine-containing substances to be investigated were added to the basal diet in quantities supplying equivalent amounts of iodine. The effect on the fresh and dry weight and the iodine content of the thyroid glands were determined as an index to the antigoitrogenic value, and hence the degree of utilization, of iodine from the substance employed. The results indicated that iodine in the form present in milk, oysters and dried haddock was just as effective in preventing thyroid hypertrophy and in promoting the storage of iodine in the gland as was potassium iodide. Thus, no support is given by these results to the view that "food iodine" is superior to "inorganic iodine." Iodine supplied in the form of irish moss was not as effective as were the other forms, suggesting that the iodine present in this substance is only partially available to the organism.

Similar evidence of differences in the availability of iodine from different substances was obtained in the studies on laying hens,[3] the amount of iodine appearing in the excreta and in the eggs serving as criteria of the effectiveness of the substance given. Little difference was found between the retention of iodine and the iodine content of the eggs after the administration of oyster shell, desiccated thyroid, sodium or potassium iodide, potassium iodate, diiodotyrosine or iodized olive oil. However, the iodine of iodosalicylic acid appeared to be only partially available. More than 70 per cent of the iodine administered in this form appeared in the excreta, whereas only 48 to 66 per cent of that given as the other compounds was eliminated. Likewise, the iodine content of the eggs from hens given iodosalicylic acid was decidedly less than that from the eggs of hens fed the other iodine-containing substances.

There are apparently distinct differences in the availability of iodine in various forms. These differences may not be of great significance as far as the dietary supply of iodine in the normal human individual is concerned, since the iodine of many common foods, as milk and sea foods, appears to be readily available to the organism. However, in patients whose iodine requirement may be greatly augmented by hyperactivity of the thyroid gland or by other pathologic conditions, the question of supplying iodine in its most utilizable form may become highly significant.

1. von Fellenberg, T.: Das Vorkommen, der Kreislauf und der Stoffwechsel des Jods, pp. 310-314; Ergebn. d. Physiol. **25**: 176, 1926.
2. Remington, R. E.; Coulson, E. J., and Levine, Harold: Studies on the Relation of Diet to Goiter: IV. The Antigoitrogenic Value of Some Foods, J. Nutrition **12**: 27 (July) 1936.
3. Asmundson, V. S.; Almquist, H. J., and Klose, A. A.: Effect of Different Forms of Iodine on Laying Hens, J. Nutrition **12**: 1 (July) 1936.

## EFFECTS OF HEAT ON THE HUMAN BODY

Consideration of the effects of heat falls into two natural divisions; namely, the acute results of encountering high temperatures for short periods, and the effects of residence in tropical climates. Drinker,[1] in a recent article, has discussed some of the physiologic aspects of encountering these two forms of heat. Sweat is an important element concerned in body response to high temperatures. Since sweat contains from 0.1 to 0.5 per cent of sodium chloride, a daily production of sweat of 7.5 liters, such as may occur under the influence of high temperatures, would mean a loss of approximately 22.5 Gm. of salt. Since the average normal excretion

1. Drinker, C. K.: The Effects of Heat and Humidity upon the Human Body, J. Indust. Hyg. & Toxicol. **18**: 471 (Oct.) 1936.

of salt in the urine is only about 12 Gm. in twenty-four hours, such a depletion of body chlorides probably would initiate most important physiologic events. Under such circumstances, therefore, it would be necessary to restore the normal salt-water ratio as rapidly as possible. For this purpose, excess salt administered both orally and under the skin combined with milk by mouth usually furnishes an adequate supply of both essentials and aids in the prevention of heat cramps. In fact, as Drinker points out, the prevention of heat cramps is of greater importance than their treatment. Men at hard work under high temperatures must be in good physical condition. Alcohol and excess of all sorts must be avoided. A sodium chloride intake of at least 15 Gm. a day must be maintained. Some sort of adaptation appears to occur in physically competent men placed at work in high temperatures. Little is known of the nature of this acclimatization, but apparently men sweat more readily as they become accustomed to exposure to heat; also the sweat appears to contain a lower concentration of sodium chloride. Such conditions as "heat exhaustion" and "heat stroke" appear to be due to abnormal stimulation of heat production. Treatment of these disturbances consists in the use of cold packs or cold baths, salt solution under the skin, and water by mouth as soon as possible.

The slower and more subtle effects of prolonged residence in the tropics are of even more importance to man. The gradual deterioration in health which white persons experience constitutes the real problem. Deterioration is in fact the rule, and two years is probably the longest safe period for tropical residence. Furthermore, it is probable that the effects of tropical residence are worse in women and children than in men. The basal metabolism of individuals transferring from a temperate to a tropical region seems to undergo considerable individual variations. Thus, in one person's observations on himself, the basal metabolism began to fall within a few days after hot weather was encountered. It remained low until cooler weather was brought by trade winds, when it immediately rose to its previous level. In other instances, however, significant changes in basal metabolism were not noted. As a rule, a slight increase in body temperature is the rule on entering tropical climates. Height is apparently attained more readily than in temperate regions, and fatness is uncommon. A tall, thin type of person is perhaps best suited for tropical residence, having a maximum surface for heat loss in relation to body weight. Fertility appears to be reduced in the tropics, both sexes being affected. A slight decrease in pulse rate and in systolic blood pressure is the rule, but the changes are relatively insignificant. Respiration tends to decrease in rate, and the minute volume is somewhat higher. Alterations in blood volume, if any, need further detailed study. A slight alkalosis has been reported, particularly in persons leading a sedentary life in the tropics. Blood sugar is apt to be low, and nonprotein nitrogen has been reported from northern Australia to be increased. A reduction of total phosphorus in the blood has also been reported. Red cells are slightly increased in number and white cells decreased, though in neither is the change important. Little is definitely established as to the effect on the ductless glands and nervous system. It is said that after about 3 years of age children tend to become weak and apathetic and that initiative and application become poor after the tenth year. In the case of adults, weakening of the will power with laziness and the gradual development of vicious habits are commonly noted. The latter observations, however, are invariably vague, and authorities are contradictory.

Drinker concludes that, in order to succeed in the tropics, white men must be willing to undergo discipline they would not subject themselves to in the north. The principles that should govern life in the tropics are simple and consist in moderate amounts of simple food, plenty of water, adequate salt intake, daily exercise, no alcohol and adequate sleep. This simple summation of the effects of long continued heat and the methods of combating it should serve as an admirable basis for present discussions and further investigation.

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## VITAMIN $B_1$ AND PYRUVATE METABOLISM

In the rapid development of our knowledge of the chemistry and physiology of the vitamins, definite chemical structures have already been assigned to a number of them. The symptoms of vitamin deficiencies have been established and in many instances the resulting pathologic condition has been largely clarified. Although the end results of vitamin deprivation are now fully described, the early alterations in the normal physiologic functions of the organism, occurring before gross pathologic changes become manifest, are quite obscure. As in many other studies of intermediary metabolism, the initial and final steps in the process are easier to elucidate than are the transformations that take place in the course of the development of symptoms of deficiency. Investigators are, however, actively looking into these difficult relationships. The studies have already produced data with respect to the possible relationship of vitamin $B_1$ to carbohydrate metabolism in general and, more specifically, to the transformations of two important intermediate catabolites of carbohydrate metabolism: lactic and pyruvic acids.

Investigations in the department of biochemistry at Oxford University demonstrated[1] that there is an increased amount of lactic acid in the brain of pigeons in the terminal stages of vitamin $B_1$ deficiency, as compared with the lactic acid content of the brain tissue of normal birds. A reaction[2] for pyruvic acid was

1. Kinnersley, W. H., and Peters, R. A.: Biochem. J. **23**: 1126 (No. 5) 1929.
2. Peters, R. A., and Thompson, R. H. S.: Biochem. J. **28**: 916 (No. 3) 1934.

observed in lactate solutions in which the diseased pigeon brain had respired in vitro. Furthermore, the addition of crystalline vitamin $B_1$ caused an extra uptake of oxygen and a disappearance of lactate and pyruvate from the incubating mass of tissue. These results led to the hypothesis that vitamin $B_1$ is indirectly concerned with the oxidative removal of lactate and pyruvate in the avian brain. It was suggested that the effect of the vitamin is indirect because of the wide variations of the data found for the ratio of extra oxygen uptake to pyruvic acid disappearing, when these values were compared to the calculated ratios. The results are striking for the reason that pyruvic acid has thus been demonstrated to be the first organic substance which disappears in vitro as the result of the action of vitamin $B_1$. The observations are in harmony with an early suggestion that disorders observed in polyneuritis may be due to the accumulation of intermediate substances, arising from carbohydrate breakdown, which cannot be metabolized in the absence of the vitamin.

Sherman and Elvehjem,[3] at the University of Wisconsin, prepared for chicks a ration so low in vitamin $B_1$ that polyneuritis develops within two weeks. This makes available another type of test bird for studying the rôle of vitamin $B_1$ in the metabolism of pyruvic or lactic acid in brain tissue. The results of their tests are not entirely in agreement with those of the Oxford group. The Wisconsin investigators have found that there are no significant disturbances in lactate oxidation of brain tissue of avitaminous chicks. The heart tissue of these chicks showed a decreased rate of oxygen uptake in lactic acid and a decreased rate of removal of the acid. With the heart tissue, an increased oxygen uptake was produced by the addition of vitamin $B_1$. The latter compound, however, was without effect on lactate oxidation by brain tissue. These discrepancies in results are not serious when it is recalled that only a short period was required for the development of the polyneuritis in the chicks, as compared to the thirty days required to produce head retractions in the pigeons. It may be that, in the more rapidly developing polyneuritis, disturbances in tissue metabolism may appear in the heart and possibly other organs before the demonstrable effects on the central nervous system are produced. When pyruvate serves as the substrate, the results of the two laboratories are in good agreement. In avitaminous brain tissue there is a decreased respiration in pyruvate substrate. The addition of crystalline vitamin $B_1$ brings back the lowered oxygen uptake to an almost normal level and increases the rate of pyruvate removal. Sherman and Elvehjem have also demonstrated that kidney tissue from normal and from polyneuritic chicks acts similarly with respect to pyruvic acid.

The in vitro evidence of the atypical metabolism of pyruvic acid in avitaminous pigeon and chick tissues has led to the hypothesis that the syndrome of polyneuritis is directly caused by an accumulation of pyruvic acid. This idea now gains some support from a study of the metabolism of pyruvate in avitaminosis $B_1$ in the living animal. The Wisconsin workers[4] have followed the rate of removal of intravenously injected pyruvate from the blood of normal and of polyneuritic chicks. Pyruvate injected intravenously in normal chicks could not be significantly detected one minute after injections of amounts sufficient to produce a large theoretical increase in blood pyruvate. On the other hand injection of sodium pyruvate in polyneuritic chicks produced a sharp increase in blood pyruvate, which slowly returned to the normal level. These observations are consistent with the hypothesis that in polyneuritis there is a failure in the tissue metabolism of pyruvic acid. The possible relationships of this result to the gross pathologic changes developing in long sustained vitamin $B_1$ deficiency remain to be established.

3. Sherman, W. C., and Elvehjem, C. A.: Biochem. J. **30**: 785 (May) 1936; Am. J. Physiol. **117**: 142 (Sept.) 1936.

4. Sherman, W. C., and Elvehjem, C. A.; J. Nutrition **12**: 321 (Sept.) 1936.

## *Current Comment*

### BLOOD PHOSPHATASE IN DIAGNOSIS OF JAUNDICE

The significance of phosphatase in the blood has for some time been a subject of debate. Rothman and his co-workers[1] have recently reported a study of the blood phosphatase based on all the cases of jaundice observed by them during the past three years and on a series of cases without jaundice and with none of the other pathologic states believed to influence phosphatase values. The cases of jaundice were classified in the orthodox manner under the heads of obstructive jaundice, hepatocellular or nonobstructive jaundice and hemolytic jaundice. The method of phosphatase determination employed by these investigators was a slight modification of Roberts' method. In many instances the phosphatase determinations were repeated at frequent intervals, and in most instances quantitative serum bilirubin determinations were done simultaneously. The phosphatase values in most of the cases of obstructive jaundice were found to have values of greater than 10 units, while in the nonobstructive cases the values were found to be 10 units or less. These investigators agree with others, notably Roberts, that a phosphatase value of 10 units may be considered the dividing line between cases of obstructive and nonobstructive jaundice. Furthermore, phosphatase determination seems to be of greater value than any other available test in differentiating between these two forms of jaundice. Hence it appears that the blood phosphatase reflects two mechanisms: that due to obstruction and that due to a more direct involvement of the liver parenchyma. When both of these disturbances are present, the extent of each can be roughly gaged by comparing the bilirubin with the phosphatase values.

1. Rothman, M. M.; Meranze, D. R., and Meranze, Theodore: Blood Phosphatase as an Aid in the Differential Diagnosis of Jaundice, Am. J. M. Sc. **192**: 526 (Oct.) 1936.

## MEDICOLEGAL CASES: 1931-1935

Abstracts of medicolegal cases have been published weekly in THE JOURNAL since 1900. They reflect the many and varied medicolegal problems that often perplex the busy practitioner. They indicate as well the ways in which others have met, or failed to meet, difficult medicolegal situations. The interest that has been aroused by these abstracts has been shown by repeated requests from many physicians that they be made available in book form. An initial volume was published in 1932 containing the abstracts that appeared in THE JOURNAL during the calendar years 1926-1930 inclusive. Now a second volume, entitled "Medicolegal Cases: 1931-1935," will soon be ready for distribution. This second volume will embody abstracts that were published in THE JOURNAL from Jan. 1, 1931, to Dec. 31, 1935. It will comprise a table of cases, 813 pages of abstracts, and seventy-four pages devoted to a detailed, comprehensive index affording ready access to the many interesting points developed in the approximately 900 abstracts. The book will be bound, as was its predecessor, in durable library buckram, law book style. Physicians, lawyers and others interested in avoiding legal difficulties and in solving medicolegal problems when they arise will find this volume a useful and interesting addition to their reference libraries.

# *Association News*

## ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD NOV. 15 AND 16, 1936

### DR. HOWARD FOX TO SUCCEED DR. WILLIAM ALLEN PUSEY ON EDITORIAL BOARD OF ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY

The resignation of Dr. William Allen Pusey from the Editorial Board of the *Archives of Dermatology and Syphilology*, to take effect on December 31, was accepted and the deep appreciation of the Board for the fine service he has rendered for so many years was expressed.

Dr. Howard Fox of New York was elected to succeed Dr. Pusey as editor in chief.

### RESIGNATIONS FROM COUNCIL ON PHYSICAL THERAPY

The resignations of Dr. F. J. Gaenslen and Dr. George Miller MacKee from the Council on Physical Therapy, due to illness, were accepted. Dr. George Clinton Andrews of New York was elected to succeed Dr. MacKee. Dr. Gaenslen's successor will be announced later.

### APPOINTMENTS

A standing committee of the Board of Trustees to study the problems of industrial medicine and a committee to determine the value of x-ray film with a paper base as a substitute for film with a gelatin base were appointed. The Board approved nominations submitted by the President for a committee to survey and study the problem of motor vehicle accidents and injuries therefrom and to report to the House of Delegates, in accordance with a resolution introduced in the House of Delegates at the Kansas City session. The composition of these committees will be announced when acceptances of the appointments have been received.

Dr. W. J. McConnell of New York was appointed to represent the American Medical Association on the Sectional Committee on Building Code Requirements and Ventilation of the American Standards Association; Dr. Edward Jackson of Denver, to succeed himself on the Sectional Committee on Standards of School Lighting, and Dr. Austin A. Hayden of Chicago, Secretary of the Board of Trustees, to succeed Dr. Wendell C. Phillips (deceased) on the Committee on Sound Level Meters.

### CHAIRMAN OF LOCAL COMMITTEE ON ARRANGEMENTS

The nomination of Dr. W. J. Carrington as chairman of the Local Committee on Arrangements for the 1937 session of the Association, to be held in Atlantic City, was confirmed.

### SUBSTITUTION OF SUPPLEMENT TO JOURNAL FOR A. M. A. BULLETIN

The discontinuation of the publication of the *American Medical Association Bulletin* and the substitution therefor of a supplement to THE JOURNAL each week, to be devoted to organizational affairs, medical economics, the social aspects of medical practice and similar material, received approval.

### ANNUAL REPORTS ON TYPHOID, DIPHTHERIA AND FOURTH OF JULY STATISTICS

The Board authorized continuation of the publication in THE JOURNAL of the typhoid and diphtheria statistics and the resumption of the publication of statistics of Fourth of July accidents.

### CONFERENCE ON SYPHILIS

The Surgeon General of the United States Public Health Service appeared before the Board for a discussion of certain phases of the program of that service and expressed the desire to have the active cooperation of the medical profession, especially at this time, in connection with plans to be developed for the prevention and treatment of syphilis.

### MISCELLANEOUS

Numerous other matters pertaining to the business and work of the Association were given full consideration.

### COMMITTEES PREVIOUSLY APPOINTED

The composition of committees appointed at the meeting of the Board of Trustees in September is as follows:

Committee to Study Air Conditioning: Drs. William F. Petersen, Chicago; H. B. Williams, New York; Emery R. Hayhurst, Columbus, Ohio; Carey P. McCord, chairman, Detroit, and C. P. Yaglou, Boston.

Committee on Asphyxia: Drs. Paluel J. Flagg, New York; John S. Lundy, Rochester, Minn., and Thomas J. Vischer, Philadelphia.

Committee on Medicolegal Blood Grouping Tests: Drs. Karl Landsteiner, New York; Alexander S. Wiener, Brooklyn, and Ludvig Hektoen, Chicago.

Advisory Committee on Cosmetics of the Advertising Committee: Drs. C. Guy Lane, Boston; Joseph Jordan Eller, New York, and Francis E. Senear, Chicago.

## RADIO BROADCASTS

The American Medical Association and the National Broadcasting Company are presenting the second series of dramatized health broadcasts under the title Your Health. The first broadcast in the new series, the thirty-second dramatized cooperative broadcast under the title Your Health, was given October 13. The theme for 1936-1937 differs slightly from the topic in the first series, which was "medical emergencies and how they are met." The new series is built around the central idea that "100,000 American physicians in great cities and tiny villages, who are members of the American Medical Association and of county and state medical societies, stand ready, day and night, to serve American people in sickness and in health."

The program will go out on the Blue network instead of on the Red network, as originally announced.

The topics are announced monthly in advance in *Hygeia*, the Health Magazine, and three weeks in advance in each issue of THE JOURNAL. The topics and speakers for the next three programs are:

December 8. Heredity and Disease. Morris Fishbein, M.D.
December 15. Milk. W. W. Bauer, M.D.
December 22. The Gift of Health, Morris Fishbein, M.D.

The time of the broadcast is Tuesday afternoon at 4 o'clock central standard time (5 o'clock eastern time, 3 o'clock mountain time, 2 o'clock Pacific time).

# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

## ALABAMA

**Library in Memory of Young Physician.**—The library of the Montgomery County Medical Society is to be named the William S. Hannah Memorial Library in honor of the late Dr. Hannah, president of the society in 1932. The society has been assembling the collection for about two years; it is housed in the Carnegie Library in Montgomery. Dr. Hannah was a graduate of Johns Hopkins University School of Medicine, Baltimore, in 1924 and died in March 1935 at the age of 34.

**Vital Statistics for 1935.**—A total of 28,616 deaths was reported to the state health department in 1935, giving a rate of 10.2 per thousand of population as compared with 10.5 in 1934. The rates for white and colored persons were 8.8 and 12.7 respectively. There were 62,455 live births recorded in 1935, a reduction of 1,579 from the number reported the preceding year, giving a birth rate of 22.2 per thousand of population. The infant death rate was 62.5. New low death rates were recorded for tuberculosis, 61.8; typhoid, 2.9; bronchitis, 1.8; appendicitis, 9.9, and all puerperal causes, 59.1 per 10,000 total births. A reduction in the death rate from heart disease, 132.9, marked a change in the upward trend from this cause. Deaths from motor vehicles gave a rate of 20.6, an increase over the preceding year. A new low was recorded for diphtheria with a rate of 4.5. Increases were also noted for cancer, 60.5, and cerebral hemorrhage, 72.4. Alabama was admitted to the U. S. Birth Registration Area in 1927 and to the death registration area in 1925.

## ARKANSAS

**District Meeting.**—The Sixth Councilor District Medical Society met at Hope, November 5. The speakers were Drs. Everett C. Fox, Dallas, Texas, on "Treatment of Syphilis"; Curtice Rosser, Dallas, "Treatment of Common Rectal Disorders"; Robert M. Barton, Dallas, "Common Complaints with Reference to the Heart as Encountered in the Office"; Jack F. Perkins, Dallas, "Some Common Infections Related to Nutritional Disturbances in Infants," and P. B. Carrigan, Hope, "Albinism, Case Exhibit."

## CALIFORNIA

**Annual Graduate Assembly.**—The third annual postgraduate assembly sponsored by the Alumni Association of the College of Medical Evangelists will be held in Los Angeles, December 6. The program will include the following:

Dr. Harry E. Alderson, clinical professor of medicine (dermatology), Stanford University School of Medicine, San Francisco, Rhinoscleroma—A California Problem.
Dr. James F. Churchill, San Diego, A Discussion of Cardiac Drugs and Their Uses.
Dr. Alvin G. Foord, associate professor of pathology, University of Southern California School of Medicine, Los Angeles, Laboratory Diagnosis for the General Practitioner.
Dr. William J. Kerr, professor of medicine, University of California Medical School, San Francisco, Obesity and Its Complications.
Dr. Alfred E. Koehler, Santa Barbara, Functional Indigestion.
Dr. J. Norton Nichols, associate professor of surgery, College of Medical Evangelists, Los Angeles, Surgery of the Aged.
Dr. Walter M. Dickie, director, California State Department of Health, Sacramento, Plague.

**Former State Board Inspector Jailed—Abortion Syndicate.**—Six persons have been convicted in a recent exposé of an abortion syndicate in California, Washington and Oregon, according to *California and Western Medicine*. Those sentenced were Dr. George Watts, Dr. Jesse C. Ross, Dr. James Beggs, R. L. Rankin and William Byrne, all of whom were sentenced to serve from ten to twenty-five years in jail, and Dr. Valentine St. John, who was given from four to ten years. It was stated that notices of appeal had been filed. All except Dr. St. John had been convicted on five counts; he was found guilty on two counts. Each count called for a penalty of from two to five years and in all cases Superior Judge Arthur Crum ruled that the sentences must be served consecutively. Rankin was formerly a tax expert and Byrne a former inspector for the state board of medical examiners; both were placed in jail when the prosecutors showed that they had attempted to intimidate witnesses. The remaining five persons under trial received permission to apply for probation and the hearing was set for November 16. They are J. O. Shinn, John Creeth, Grace Moore, a nurse, Lillian Wilson and Violet Pelligrini. Trials of the eleven persons lasted four weeks and resulted from a series of raids in San Francisco, Oakland, San Jose, Los Angeles, Hollywood, Long Beach and San Diego offices of the so-called syndicate. Paul De Gaston, an actor, testified as a state witness that he had performed forty illegal operations in ten days. He said that when he operated in Seattle the license of a reputable Seattle physician hung in his office and when in San Francisco, that of a San Francisco physician. It was not disclosed how the licenses were obtained. Dr. William Norman Powers, Seattle, also pleaded guilty and testified for the state. The operation of the alleged syndicate is told in various newspaper stories reproduced in *California and Western Medicine*. So well organized was the ring, said to net $1,000,000 annually, that the physicians were rotated in the various cities at frequent intervals to avoid becoming well known. The "Medical Acceptance Corporation" was an outgrowth of the syndicate's operations, it was said, patterned after the financing of automobile agencies so that payments, with rates of interest appropriate under the circumstances, might be secured from some of the patients. Thirty-one persons were indicted in the racket, it was stated.

## DISTRICT OF COLUMBIA

**Health at Washington.**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended November 21, indicate that the highest mortality rate (21.1) appears for Washington and that the rate for the group of cities as a whole was 11.5. The mortality rate for the corresponding period last year was 16.1 for Washington and 11.2 for the group of cities. The annual rate for eighty-six cities for the forty-seven weeks of 1936 was 12 as against a rate of 11.3 for the forty-seven weeks of 1936. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely, and the death rate may tend to be increased in cities that are hospital centers or that have a large population of Negroes.

## ILLINOIS

**New Society for the Crippled.**—The Illinois Association for the Crippled has been granted a charter and its first meeting was November 5. Paul H. Fesler, superintendent, Wesley Memorial Hospital, Chicago, is president, and Lola M. Armstrong, executive secretary.

**Society News.**—A symposium on bronchiectasis was conducted before the Rock Island County Medical Society at Moline, November 10, by Drs. Paul H. Holinger and Eugene T. McEnery, Chicago.——Dr. M. Herbert Barker, Chicago, discussed pneumonia before the Lee County Medical Society, November 16.——The McHenry County Medical Society was addressed, November 19, by Dr. Lester E. Bower, Chicago, on contagious diseases.——Dr. Merritt Paul Starr, Chicago, discussed "Endocrine Treatment Problems of the Adolescent Period" before the Will-Grundy County Medical Society at Joliet, November 25. At a meeting of the society, November 18, Dr. Eugene F. Traut, Chicago, spoke on arthritis.

### Chicago

**Illegal Practitioners Convicted.**—The Illinois State Board of Registration in Medicine has been conducting a drive against illegal practitioners in Chicago and suburbs. Recently convicted was David Ingram, colored, who was given ninety days in the county jail. Ingram was involved in various swindles in Detroit, Waterbury, Conn., and Williamsport and Scranton, Pa. His aliases include the names William Hillis and Dr. William Hill. His claim to be a graduate of the National University of Argentina has been proved false. J. W. Keller pleaded guilty to practicing medicine without a license and was sentenced to eighty days in the county jail. Mrs. Ruth St. John pleaded guilty and was fined $100 and costs; a dietitian, she said she prescribed diets only for her friends. Similar fines were imposed on Mrs. Burd Gray, Oak Park, self-styled "herbalist," and Ray Drangle, operator of the "Dra-So Health Center." Mrs. Valerie Klinger, a "practical psychologist," was found guilty of violating the medical practice act, fined $100 and costs, and sentenced to thirty days in the county jail. Norman F. Allemeier was found guilty of practicing medicine without a license and fined $250 and costs. He was sentenced to sixty days in jail but was placed on probation pending good behavior. Mr. John J. Hallihan is director of the Illinois department of registration, and Mr. Homer J. Byrd, superintendent.

## INDIANA

**Pediatricians Elect Officers.**—Dr. Ernest R. Carlo, Fort Wayne, was elected president of the Indiana Pediatric Society at its annual fall meeting in Fort Wayne, November 7. Dr. Harold D. Lynch, Evansville, was chosen vice president, and Dr. Matthew Winters, Indianapolis, was renamed secretary-treasurer. The spring session of the society will be held in Indianapolis.

**Society News.**—At a meeting of the Gibson County Medical Society in Princeton, November 9, Dr. Frank M. Gastineau, Indianapolis, conducted a skin clinic and discussed treatment of the more common skin diseases.——Dr. Louis J. Karnosh, Cleveland, addressed the Wayne-Union Counties Medical Society, Richmond, November 5, on "Endocrines and Neuropsychiatry."——The Vanderburgh County Medical Society was addressed in Evansville, October 13, by Dr. Clifford O. Richey, Evansville, on "Electrocoagulation in the Treatment of Cancer of the Rectum." At a meeting, November 10, Drs. Isador J. Raphael, Edgar H. Weber and Herbert S. Dieckman, all of Evansville, discussed advances in the past ten years in pediatrics, surgery and medicine, respectively.—— Dr. Charles C. DuBois, Warsaw, addressed the Kosciusko County Medical Society in Warsaw, November 10, on "Anemia—Hematology and Therapy."——Dr. Byron G. Shaffer, Toledo, Ohio, among others, addressed the Northeastern Indiana Academy of Medicine at Kendallville, November 19, on "The Surgical Aspect of Peptic Ulcer."

## KANSAS

**Official County Representatives for State Society.**—The council of the Kansas Medical Society has recently appointed official representatives in each of the thirty-five counties not now organized as separate county medical societies to provide local organization for business, economic and legislative activities. Each representative will receive copies of all communications forwarded by the society, serve in a secretarial capacity on behalf of the physicians in his county, and be authorized to call meetings of the local profession for discussion and institution of projects, according to the state medical journal.

## MAINE

**Cancer Clinics.**—Four active cancer clinics have been established in Maine in connection with the campaign against cancer recently instituted by the American Society for the Control of Cancer, the state board of health and the Maine Medical Association. One hour each week has been set aside at the Maine General Hospital, Portland, with Dr. William Holt as the surgical director; Central Maine General Hospital, Lewiston, Dr. Joseph W. Scannell; Eastern Maine General Hospital, Bangor, Dr. Magnus F. Ridlon. Two hours have been set aside at the Thayer Hospital in Waterville, with Dr. Edward H. Risley as the surgical director. Each clinic is staffed with a surgeon, internist, pathologist and radiologist, and private practitioners are urged to avail themselves of the facilities.

**Society News.**—The Kennebec County Medical Association was addressed in Gardiner, November 19, by Drs. Frank H. Jackson, Houlton, on "Some Common Surgical Problems" and Frank B. Bull, Gardiner, "A Case of Abdominal Tumor."——Dr. Chester M. Jones, Boston, will speak on "Treatment of Liver Disease" before the Cumberland County Medical Association at its annual meeting, December 11.——Dr. William B. Castle, Boston, will discuss "Development of the Knowledge of Vitamin Deficiency Diseases" at the graduate teaching clinic of the Central Maine General Hospital, Lewiston, December 18. Dr. Edwin H. Place, Boston, discussed "The Control and Treatment of Contagious Diseases," November 26.——The Aroostook County Medical Society devoted its meeting at Fort Fairfield, October 22, to a clinical program; cases were presented by Drs. Harold E. Small and Clyde I. Swett, Island Falls, on tetanus and pneumococcic peritonitis, respectively.

## MASSACHUSETTS

**Study of Alcoholism.**—WPA funds will finance a survey of alcoholic patients at the Boston City Hospital, Boston, newspapers report. More than 5,000 alcoholic patients are treated annually, it was stated, with the average length of stay two weeks, at a cost of $5.33 a day. The treatment of alcoholism at the institution involves an annual expenditure of $370,000.

**District Meetings.**—The Norfolk District Medical Society was addressed, November 25, by Drs. Monroe J. Schlesinger on "Clinical Significance of Coronary Artery Anastomoses"; Herrman L. Blumgart, "Clinical Significance of Insufficient Coronary Blood Flow"; Joseph E. F. Riseman, "Medicinal Treatment of Angina Pectoris"; Louis Wolff, "Tobacco and Alcohol in Angina Pectoris"; Mark D. Altschule, "Effect of Intravenous Fluid on the Cardiovascular System," and Harry Linenthal, "Pulmonary Complications in Raynaud's Disease." All are from Boston.——Dr. Cole B. Gibson, superintendent and medical director of Undercliff, Meriden State Tuberculosis Sanatorium, Meriden, Conn., addressed the Middlesex South District Medical Society in Waltham, November 25.——At a meeting of the Essex South District Medical Society in Salem, December 2, Dr. John W. Strieder, Boston, discussed "Pulmonary Suppuration."

## MICHIGAN

**Wayne County Programs.**—The Wayne County Medical Society and the Detroit Retail Druggists Association will hold a joint meeting, December 7, with Dr. Bernard Fantus and O. U. Sisson, Ph.G., Chicago, as the speakers; the theme of discussion will be the newly revised Pharmacopeia and the National Formulary. Dr. Roy R. Kracke, professor of pathology and bacteriology, Emory University School of Medicine, Atlanta, will speak before the county medical society, December 21, on "The Leukopenic Diseases—Their Etiology, Diagnosis and Treatment."

**Physicians Honored.**—Dr. H. Wellington Yates, professor and head of the department of gynecology and obstetrics, and Dr. William M. Donald, professor and head of the department of medicine, Wayne University School of Medicine, Detroit, were guests of honor at a joint meeting of the staff of Receiving Hospital and the faculty of the school, November 18, in recognition of their many years of service to both institutions. Members of the board of education and the city welfare commission joined in the tribute. Dr. William J. Stapleton Jr., professor of jurisprudence, ethics and economics, reviewed the development of medical education in Detroit, and Dr. J. Milton Robb, associate professor of ophthalmology at the school, the growth of the hospital. Dr. Yates has been a member of the faculty of the college for more than thirty years and in 1932 was president of the Wayne County Medical Society. Dr. Donald is 76 years of age. He has been on the teaching staff of his alma mater since 1889, two years after his graduation. He was president of the county medical society in 1922.

## MISSISSIPPI

**Personal.**—Dr. Cecil J. Vaughn, Lexington, has resigned as health officer of Holmes County to engage in private practice in Fort Payne, Ala. He has been succeeded by Dr. George W. Mast, Memphis, Tenn.——Dr. Dewey L. Anderson, Sanatorium, has been appointed clinician with the field tuberculosis diagnostic unit of the state board of health.

**Society News.**—At the annual meeting of the Issaquena-Sharkey-Warren Counties Medical Society in Vicksburg, December 8, Drs. James M. Mason, Birmingham, discussed "Diverticulitis of the Ileum"; Peter Whitman Rowland, Memphis, "Diagnosis of Angina Pectoris," and Waltman Walters, Rochester, Minn., "Surgical Lesions of the Biliary Tract with Special Reference to Recent Studies of Obstructive Jaundice."——Dr. Martha M. Eliot, assistant chief of the Children's Bureau, Washington, D. C., addressed the state conference of social workers, among others, October 29, in Jackson, on "Progress in the Services for Children Under the Social Security Act." Rev. John L. Sutton, Jackson, was chosen president for the ensuing year, succeeding Dr. Felix J. Underwood, Jackson, executive officer of the state board of health.

## MISSOURI

**Symposium on Fever Therapy.**—The St. Louis Medical Society devoted its meeting, November 17, to a symposium on fever therapy. Speakers were Drs. Frank H. Ewerhardt, assistant professor of physical therapy, Washington University School of Medicine; John Stanley Coulter, Chicago, associate professor of physical therapy, Northwestern University School of Medicine, and Clarence Adolph Neymann, Chicago, associate professor of psychiatry at Northwestern.

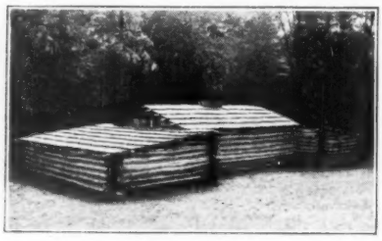
## MONTANA

**Society News.**—Dr. Joseph W. Lynch, Spokane, Wash., among others, addressed the Mount Powell Medical Society in Anaconda, October 19, on "Treatment of Brain Abscess."——At a recent meeting of the Eastern Montana Medical Society in Jordan, the speakers included Dr. Austin C. Davis, Rochester, Minn., who discussed "The Significance of Basal Metabolic Rates, Both High and Low."

## NEW JERSEY

**Society News.**—Dr. Joseph H. Globus, New York, addressed the Academy of Medicine of Northern New Jersey, Newark, November 19, on "Intracranial Hemorrhage: Its Anatomical Forms and Some of Their Clinical Features."——Dr. Christian P. Segard, Leonia, addressed the Mercer County Medical Society at Trenton, October 14, on "Late Developments in the Field of Nutrition."——A symposium on "The Injection Treatment of Hemorrhoids" was presented at the meeting of the Passaic County Medical Society, Paterson, October 8, by Drs. Rudolph V. Gorsch, New York, and Carroll D. Smith, Paterson.——Dr. Charles F. Geschickter, Baltimore, and Henry F. Vaughan, Dr.P.H., Detroit, were guest speakers at the annual meeting of the New Jersey Health and Sanitary Association in New Brunswick, November 20, on cancer and on relations between physicians and health departments with regard to immunization, respectively.

**Revolutionary War Hospital Reconstructed.** — The National Park Service has reconstructed an eighteenth century army hospital as part of its educational exhibit in the Morristown Historical National Park, Morristown, N. J. It is in Jockey Hollow, the site of the Continental Army encampment during the winter of 1779-1780 and one of three units in the Morristown park. The building is considered to be a close reproduction of the original hospital and it is planned to furnish it with displays of medical instruments, medicines and other contemporary material or reproductions to give visitors a picture of Revolutionary medical practices. The Morristown Historical National Park was established by an act of Congress approved March 2, 1933. The three units are Washington's headquarters, which contains a large collection of Washingtoniana, much other material typical of the Revolutionary period, and a library of nearly 2,000 volumes on early American history; Fort Nonsense, redoubt constructed at Washington's order in April 1777, and the Jockey Hollow Encampment sites. The picture is reproduced by courtesy of the park officials at Morristown.



Eighteenth century army hospital.

## NEW YORK

**Society News.**—Dr. J. Ivimey Dowling, Albany, addressed the Medical Society of the County of Albany, November 24, on "Sinus Surgery as Applied to the Eye and General Health."——Mr. Elvin R. Edwards, former district attorney of Nassau County, adressed the Medical Society of the County of Nassau, November 24, on "The Doctor and the Lawyer."

**State Industrial Physicians Meet.**—Dr. Willis C. Templer, Corning, was elected president of the New York State Society of Industrial Medicine at the sixteenth annual meeting in Schenectady, November 5. The speakers included Drs. David J. Kaliski, New York, on "Workmen's Compensation Law as Related to Medical Practice"; Fred W. Stewart, New York, "Relationship of Single Trauma to Malignant Tumors," and William Gayle Crutchfield, Richmond, Va., "Reduction of Fracture—Dislocation of the Cervical Spine with Skeletal Traction." A symposium on hernia was presented by Drs. Arthur F. Bratrud, Minneapolis; Norman L. Higinbotham, New York, and Edwin MacD. Stanton, Schenectady.

### New York City

**British Anatomist to Succeed Dr. Senior.**—Dr. Donal Sheehan, formerly demonstrator of anatomy, Victoria University of Manchester, Manchester, England, has been appointed professor of anatomy and director of the anatomic laboratories at New York University College of Medicine to succeed Dr. Harold Dickinson Senior, who retired in September. Dr. Sheehan, who will assume the position Sept. 1, 1937, received the degree of bachelor of medicine and surgery at Victoria University in 1929, doctor of medicine in 1932, and doctor of science on the basis of research on the anatomy of the autonomic nervous system in 1936.

**Society News.**—Drs. Leland S. McKittrick and Howard F. Root, Boston, addressed the Bronx County Medical Society, November 18, on recent progress in diabetic surgery and therapy, respectively.——At a meeting of the Bronx Gynecological and Obstetrical Society, November 23, the speakers were Drs. Samuel W. Boorstein and Sidney H. Freilich on "Restoring Function in Cases of Obstetrical Brachial Paralysis" and Abraham B. Tamis, "Management of Secondary Amenorrhea."——Dr. David L. Satenstein addressed the Bronx Pathological Society, November 17, on "Dyskeratosis: Its Diagnostic and Prognostic Value in Grading Cancer of the Skin."

**Conné Medal Awarded to Dr. Van Slyke.**—The Philip A. Conné Gold Medal of the Chemists' Club of New York has been awarded to Donald Dexter Van Slyke, Ph.D., of the Rockefeller Institute for Medical Research, for "systematic and painstaking work of immense importance to clinical medicine," it was announced November 8. Dr. Van Slyke's work concerns chemistry and physiology of proteins and amino acids, enzyme action, methods of analysis of blood and gasometric micro-analysis, respiratory and renal functions, diabetes and nephritis. A native of New York, Dr. Van Slyke was graduated from the University of Michigan in 1905 and received the degree of doctor of philosophy there in 1907. Yale University conferred on him the honorary degree of doctor of science in 1925.

**Research on Chronic Disease.**—The Research Division of Chronic Disease, established in the department of hospitals last year, has received grants amounting to $7,875 from the research council of the department, supplementing its annual grant of $25,000 from the board of estimate. The complete scientific personnel was recently announced by Dr. Sigismund S. Goldwater, commissioner of hospitals, as follows: Dr. David Seegal, research director; Forrest E. Kendall, Ph.D., Drs. Dickinson W. Richards Jr., Arthur J. Patek Jr., Kenneth B. Turner, Alfred Steiner and James S. Mansfield. Studies to be promoted include the mechanism of arteriosclerosis, pulmonary emphysema and fibrosis, cirrhosis of the liver and hypertension, the rôle of infection in chronic diseases with particular reference to chronic nephritis, and chronic arthritis. Officers of the research council for the current year are Mr. Marshall Field, Drs. Goldwater, John A. Hartwell and Bernard Sachs. The scientific advisory committee includes Drs. Alfred E. Cohn, Eugene L. Opie, Walter W. Palmer, Alphonse R. Dochez, Douglas Symmers and William H. Park. Dr. Martin H. Dawson is president of the medical board of the research division.

## OHIO

**Personal.**—Dr. William A. Welsh, Youngstown, won the championship trophy at the annual golf tournament of the Ohio State Medical Association at the annual meeting in Cleveland, October 6, with a score of 163 for thirty-six holes.

**District Meeting.**—The Ninth Councilor District of the Ohio State Medical Association held a meeting at Gallipolis, November 24, with the following speakers: Drs. Frank E. Stevenson, Cincinnati, on scarlet fever; William M. Millar, Cincinnati, diagnosis and treatment of cancer, and Charles A. Doan, Columbus, treatment of certain blood dyscrasias.

**Society News.**—Dr. Dudley M. Stewart, Toledo, addressed the Sandusky County Medical Society, Fremont, October 29, on "Orthopedic Problems in General Practice."——Dr. Wallace B. Taggart, Dayton, addressed the Darke County Medical Society, Greenville, November 20, on "Chronic Lung Infections in Children."——Dr. Esther B. Tietz of Longview State Hospital, Cincinnati, addressed the Butler County Medical Society, November 4, on "Paper Diagnosis of Psychoses."——Dr. Hiram B. Weiss, Cincinnati, addressed the Hempstead Academy of Medicine, November 9, on "Hypertension and Hypotension."

## OREGON

**University News.**—The departments of anatomy and otolaryngology at the University of Oregon Medical School, Portland, have received a grant of $400 from the American Academy of Ophthalmology and Otolaryngology to continue research on diseases of the sinuses under the direction of Olof Larsell, Ph.D., and Dr. Ralph A. Fenton.

## PENNSYLVANIA

**Society News.**—Dr. Charles G. Strickland, Erie, addressed the Warren County Medical Society, November 16, on "Ovarian Tumors."——Dr. Charles L. Brown, Philadelphia, addressed the Bucks County Medical Society, November 11, on "Cardiac Arrhythmias—Their Clinical Symptoms." At this meeting the committee on public relations and medical economics was empowered to ask the county commissioners for $6,000 for the care of the indigent for one year, this amount to include the

salary of a secretary to be under the control of the society. The committee was also empowered to ask for money to pay for hospitalization of the indigent.——Drs. William J. Daw, Forty Fort, and William Baurys, Nanticoke, addressed the Luzerne County Medical Society, Wilkes-Barre, on "Hypertrophy of the Prostate" and "Internal Urinary Antiseptics," respectively.——Dr. Austin C. Lynn, Philipsburg, among others, addressed the Clearfield County Medical Society in Philipsburg, November 12, on "Diseases of the Hand."

### Philadelphia

**Dr. Müller Appointed Professor of Surgery.**—Dr. George P. Müller, formerly professor of clinical surgery at the University of Pennsylvania Graduate School of Medicine, has been appointed professor of surgery at Jefferson Medical College to succeed the late Dr. Edward J. Klopp. Dr. Müller, a graduate of the University of Pennsylvania, is surgeon to the Lankenau and Misericordia hospitals. He is a member of the board of regents of the American College of Surgeons, a member of the Philadelphia College of Physicians and a past president of the Philadelphia County Medical Society.

**Testimonial to Dr. Strittmatter.** — One hundred and twenty-five friends attended a dinner in honor of Dr. Isidor P. Strittmatter, November 5, at the Union League of Philadelphia. Dr. Louis H. Clerf was toastmaster. A souvenir book bearing the signatures of the guests was presented to Dr. Strittmatter. Among the speakers were Drs. Wilmer Krusen, Henry D. Jump, Francis A. Faught and Ross V. Patterson. Dr. Strittmatter, who is 76 years old, graduated from Jefferson Medical College in 1881. In 1923 he established the Strittmatter Award to be given to the physician presenting to the Philadelphia County Medical Society the most valuable contribution to the healing art in any given year; it was awarded for the first time in 1933. Dr. Strittmatter was president of the Philadelphia County society in 1928.

**Three Day Cancer Program.**—Several organizations joined in presenting a three day cancer program in Philadelphia November 30-December 2. The Pennsylvania Association of Tumor Clinics held a meeting November 30 at Lankenau Hospital, with surgical clinics and round table discussions in the x-ray department and the pathology laboratories of the hospital. The next two days were devoted to a cancer forum for the general public presented by the Women's Auxiliary of the Lankenau Hospital Research Institute for the Promotion of Cancer Research. Among the speakers were:

Dr. Francis Carter Wood, New York, Stepping Stones in Cancer Knowledge.
Dr. James J. Durrett, chief of the drug division, Food and Drug Administration, Washington, "Quacks" and Their Methods.
Mr. H. J. Klein, Metropolitan Life Insurance Company, New York, Insurance Companies in Relation to Cancer.
Clarence C. Little, Sc.D., Bar Harbor, Maine, Cancer Control.
Dr. Madge T. Macklin, London, Ont., The Brighter Side of Cancer.
Dr. Victor G. Heiser, New York, Cancer in Primitive Peoples.

The Philadelphia County Medical Society presented a symposium on malignant tumors, December 2, with Dr. Madge T. Macklin as a speaker on the hereditary background as one of the major causes of malignancy and Dr. Joseph McFarland, Philadelphia, on the environmental background. The sponsoring agencies were the American Society for the Control of Cancer, the Cancer Commission of the Medical Society of the State of Pennsylvania, the committee on cancer control of the Philadelphia County Medical Society, the State Federation of Pennsylvania Women and the Philadelphia Federation of Women's Clubs and Allied Organizations.

### Pittsburgh

**Research on Optical Glass.**—Investigations of the chemistry and physics of glass surfaces to aid in the development of scientific apparatus and ophthalmic instruments is under way at Mellon Institute of Industrial Research under the auspices of the Bausch and Lomb Optical Company of Rochester, N. Y. Frank L. Jones, Ph.D., a member of the staff since 1931, will be in charge of the new investigations, which will be concerned with the effects of environmental factors on the durability of the glass used in optical instruments.

## TEXAS

**Clinics at Fort Worth.** — The Tarrant County Medical Society sponsored the Fort Worth Medical and Surgical Clinics, October 6, with Drs. William L. Bonham, Leo J. Starry and Minard F. Jacobs, all of Oklahoma City, as guest speakers. Clinics were held at Baptist, Cook and Harris hospitals and dry clinics at the Medical Arts Building. Dr. John E. Daly was chairman of the committee in charge of arrangements.

**Personal.** — Dr. Alwin M. Clarkson, Dallas, has been appointed epidemiologist to the state department of health to succeed Dr. Charles D. Reece, Austin, who resigned. —— Dr. Austin E. Hill, Dallas, has been appointed health officer of Smith County, and Dr. Lyman T. Cox, El Paso, of the Winkler County unit.

**State Surgical Meeting.** — Drs. John de J. Pemberton, Rochester, Minn., and Edward W. A. Ochsner, New Orleans, were guest speakers at the semiannual meeting of the Texas Surgical Society in Dallas, October 5-6. Dr. Pemberton spoke on "Surgery of the Colon" and Dr. Ochsner on "Prevention of the Reformation of Peritoneal Adhesions by Papain: A Clinical Consideration." Dr. Charles C. Green, Houston, was elected president.

**University News.**—Dr. Percival A. Duff, formerly of Los Angeles, has been appointed assistant professor of pathology at the University of Texas School of Medicine, Galveston, and Dr. Truman J. Blocker Jr. has been appointed associate professor of surgical pathology. Dr. Clarence S. Sykes has been promoted to the rank of associate professor of ophthalmology. Newspapers recently reported that Dr. Paul A. Woodward has resigned as associate professor of medicine and Dr. Loyd W. Sheckles Jr. has been promoted to be assistant professor of medicine. At the opening session of the fall term October 1 an address was made by Dr. Seth M. Morris, professor of ophthalmology, who is the only member of the original faculty of the school who has remained in continuous service. Dr. Morris will retire at the end of this year.

## WISCONSIN

**Society News.**—At a meeting of the Milwaukee Society of Clinical Surgery, November 24, the speakers were Drs. Claude S. Beck, Cleveland, on "Surgery of the Heart and Pericardium"; David A. Cleveland, Milwaukee, "Early Diagnosis of Brain Tumors," and Hugh McKenna, Chicago, "Treatment of Fractures of the Neck of the Femur."——Drs. Fred H. Albee, New York, and Francis D. Murphy addressed the Medical Society of Milwaukee County, November 13, on "Bone Carpentry" and "The Use of Insulin Protamine in the Treatment of Diabetes" respectively.——At a meeting of the Milwaukee Oto-Ophthalmic Society, November 10, the speakers were Drs. Robert Sonnenschein, Chicago, on "Reflexes or Referred Signs and Symptoms of Diseases of the Nose, Throat and Ear"; Samuel J. Pearlman, Chicago, "Modern Conceptions of Therapy of Malignant Growths of the Pharynx and Larynx," and Samuel Salinger, "Treatment of Injuries to the Face." ——Drs. Charles W. Mayo and Edwin J. Kepler, Rochester, Minn., addressed the Eau Claire-Dunn-Pepin Counties Medical Society, in Eau Claire, October 26, on "Surgery of the Colon" and "Endocrinology" respectively.

## GENERAL

**Unauthorized Subscription Agent.** — The *Archives of Physical Therapy* reports that a Mr. H. Harvey of Toronto, who was authorized to represent that journal several months ago, is no longer an accredited agent. Harvey at first reported having taken some subscriptions but has not been heard from for some months. The American Congress of Physical Therapy has had complaints from physicians who have subscribed but have not received their journals.

**Health of Students Studied.**—The American Youth Commission is sponsoring a survey to be made of student health in sixty representative American colleges and universities, it is announced. Dr. Harold S. Diehl, dean of medical sciences, University of Minnesota Medical School, and Dr. Charles E. Shepard, associate professor of hygiene and physical education, Stanford University School of Medicine, will make the survey, and federal aid students will be employed to assist on the project. The youth commission is a subsidiary of the American Council on Education, Washington, D. C.

**Examinations in Otolaryngology.**—The American Board of Otolaryngology will hold an examination in Philadelphia June 7-8, 1937, during the annual session of the American Medical Association in Atlantic City. Prospective applicants for certificates should obtain blanks from the secretary of the board, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, Neb. In an examination prior to the annual meeting of the American Academy of Ophthalmology and Otolaryngology in New York in September, 120 candidates were examined and 103 were certified.

**Physicians Paid with Counterfeit Money.** — Search is being made for a man who has been victimizing physicians in New York City. His procedure is to request a physical examination, in payment of which he gives a counterfeit $20

bill. Physicians are asked to note carefully the serial numbers of bills coming into their possession, as the counterfeit ones are light in color and somewhat irregular in impression and alinement. The swindler is described as being short, heavy set, 5 feet 8 inches tall, weighing about 212 pounds, and about 39 years of age, with black hair and brown eyes. He is said to speak with a pronounced Greek accent and has been using the name of George Alexander. Physicians are asked to notify the nearest police officer.

**Society News.**—Dr. Fletcher H. Colby, Boston, was chosen president of the New England Branch of the American Urological Association at its meeting in Boston, November 12, and Dr. George C. Prather, Boston, secretary.——The American Academy of Tuberculosis Physicians will meet in Atlantic City, June 7-8, 1937. Dr. Charles O. Giese, Colorado Springs, is president, and Dr. Arnold Minnig, Denver, is secretary.—— Dr. Frank K. Boland, Atlanta, was elected president of the Southern Medical Association at its annual meeting in Baltimore, November 18. Drs. Sydney R. Miller, Baltimore, and Leander A. Riely, Oklahoma City, were elected vice presidents and Mr. C. P. Loranz, Birmingham, was appointed secretary and general manager for a term of five years.

**News of Epidemics.**—Schools in Tulsa, Okla., were closed November 2 and those of Tulsa County a week later because of an outbreak of infantile paralysis. In the three weeks that preceded November 2, forty cases had developed in Tulsa; only seventeen cases had occurred in the city since 1928.—— Thirteen persons were ill of typhoid in Edna, Pa., a mining town in Westmoreland County, November 12; the infection was traced to a spring and two wells. A spring was blamed as the source of infection in an outbreak affecting eleven persons at Eldersville, Pa., another mining community.——Schools were closed in Gibsonburg, Ohio, November 5, after thirty-seven cases of scarlet fever were reported. Schools at Chebanse, Ill., were closed November 2 because of an outbreak there. The state health department of Minnesota reported 292 cases of scarlet fever during October.

**Meeting of Western Surgical Association.**—The forty-sixth annual meeting of the Western Surgical Association will be held at the Hotel Muehlebach, Kansas City, Mo., December 11-12. Other speakers will include:

Dr. Warren H. Cole, Chicago, Pneumococcus Peritonitis.
Dr. Waltman Walters, Rochester, Minn., Should Gastric Resection Be Done for Duodenal Ulcer?
Dr. Verne C. Hunt, Los Angeles, Benign Tumors of the Stomach.
Dr. William E. Gallie, Toronto, Canada, Further Experiences with the Transplantation of Tendon and Fascia.
Dr. H. Winnett Orr, Lincoln, Neb., A Special Surgical Procedure and the Orthopedic After-Care in Spina Bifida.
Dr. George M. Curtis, Columbus, Ohio, The Surgical Significance of the Accessory Spleen.
Dr. Charles L. Patton, Springfield, Ill., Hepatic Duct Strictures.

The annual dinner of the association will be held Friday evening December 11. Dr. Thomas G. Orr, Kansas City, will deliver the presidential address on "An Incision for Complete Breast Amputation," Saturday morning.

**The Woman's Auxiliary.**—The October News Letter of the Woman's Auxiliary of the American Medical Association reports the activities and future plans of various state auxiliaries. The Illinois auxiliary plans to assist the legislative committee of the Illinois State Medical Society during the meeting of the legislature which opens in January. Among this year's objectives for Illinois are building up a clientele for periodic health examinations, building an audience of lay followers for radio programs of the state society and the American Medical Association, keeping in touch with health material in lay publications, and cooperation with other organizations for promotion of health education. The New York auxiliary was organized in March and now has six county units; the new group helped to defeat a chiropractic bill in the last legislature. West Virginia members are compiling a history of the West Virginia State Medical Association and each county plans to make a study of some topic of medical research for the library of the Southern Medical Auxiliary. This auxiliary will sponsor an exhibit of doctors' hobbies at the 1937 convention. Georgia's auxiliary lays its chief emphasis on its student loan fund to educate children of Georgia physicians in Georgia medical schools. Among other activities, it also presents a health education program in cooperation with the Medical Association of Georgia and observes "Doctor's Day" March 30 each year. The aims of the Kansas auxiliary for the year include presentation of health education programs, health activities in cooperation with other organizations, and study of legislation concerning medicine. At the recent annual meeting of the Virginia auxiliary it was decided that the group should undertake the maintenance of a bed in a tuberculosis sanatorium for the use of needy physicians or their dependents.

# *Foreign Letters*

## LONDON

*(From Our Regular Correspondent)*

Oct. 24, 1936.

### The British Medical Association and the Nostrum Evil

In spite of efforts to check the nostrum evil, it continues unabated. The press is full of more or less fraudulent advertisements of preparations that will cure all sorts of diseases. Highly respectable journals are no exception and the religious press seems to be among the worst offenders. Perhaps the venders select it because there are people foolish enough to suppose that an advertisement in a religious publication is some sort of guaranty of respectability. For some years the British Medical Association has tried to grapple with the evil. During the years 1906 to 1909 it published analyses of secret remedies, which were made by the authority of the council. These were afterward collected and published in two books entitled "Secret Remedies" and "More Secret Remedies." These had extensive sale, though several of the more popular daily and Sunday newspapers refused to accept advertisements of the books, evidently because nostrums were extensively advertised in them. The analyses revealed to the public for the first time the worthless nature and trifling cost of many of the vaunted cures. Some of the venders were audacious enough to turn the exposure to account by offering their preparations for sale as "according to the formula of the British Medical Association." They thus pretended that they were acting under the authority of the association. One man actually opened a "B. M. A. Store." The association was involved in considerable expense and litigation in stopping this unauthorized use of its name.

The association's hope that the government would take the matter up was realized when a select committee was appointed by parliament to inquire into the sale of "patent" and proprietary medicines. The association was invited to give evidence. It recommended that: 1. On every packet of a nostrum offered for sale the name and quantity of each of its constituents should be given. 2. The label should constitute a warranty, and false description should be made an offense. 3. The provisions of the Food and Drugs Act should apply to proprietary medicines. The committee made a number of important recommendations. A department of state should be established for dealing with the advertising and sale of "patent medicines." There should be a register of their manufacturers, proprietors and importers and a complete statement of their ingredients and proportions, and the therapeutic claims made should be supplied. The advertisement and sale of cures for cancer, consumption, deafness, diabetes, paralysis, epilepsy, locomotor ataxia and rupture (without appliance) should be prohibited. It should be illegal to invite sufferers from any ailment to correspond with the vender of a remedy or to use fictitious testimonials. These recommendations were warmly approved by the British Medical Association, but the outbreak of the great war prevented anything further being done. After the war the association endeavored to secure legislation and helped in the drafting of two bills, which were unsuccessful. The failure of a bill that was made moderate so as to secure the support of newspaper and advertising associations and representatives of the drug trade was reported in THE JOURNAL, May 23, page 1829. It would have prevented only the worst forms of unscrupulous advertising, on the lines of the recommendations of the select committee, but it was "talked out." This deplorable result was brought about by misleading propaganda and by exploiting the suspicion of a section of the public that the medical profession in supporting the bill was actuated by selfish motives.

It is now stated in the *British Medical Journal* that the medical secretary of the association is asked almost daily for

information concerning the chemical composition and therapeutic activity of one or other of the numerous nostrums that excite the hopeful curiosity of patients. Unfortunately the particulars required are often not available. There is great difficulty in providing adequate information on the whole class of secret remedies, but the possibility of arranging for chemical analyses in special cases is under consideration. The association is also trying to secure the elimination from the press of advertisements that are obviously fraudulent or misleading. Although many newspaper proprietors are loath to take action that would diminish their income, considerable success has been achieved with the proprietors of the higher class newspapers and periodicals. The association's attention was drawn to objectionable advertisements of "patent medicines" in church magazines. Certain religious organizations were approached, and the Guild of St. Luke agreed to issue to clergymen of the Church of England a pamphlet on the harmful effects of "patent medicines" and a warning against their advertisement in church magazines. The association has also been disturbed by advertisement of "patent medicines" in some government publications, such as books of stamps, because the nature of the medium is liable to suggest that the products advertised have some sort of government approval. A promise has been obtained that remedies for certain diseases shall not be advertised, but not all undesirable advertisements are being refused. The association would like to secure control of the sale of "patent medicines" such as now exists in Canada.

### The Association for the Advancement of Science

At the annual meeting of the British Association for the Advancement of Science, several papers of special interest to physicians were read.

#### THE MECHANISM OF EVOLUTION

Dr. Julian Huxley took for the subject of his presidental address "Natural Selection and Evolutionary Progress." He pointed out that three distinct problems were involved in evolution—the origin of species, the origin of adaptations and the origin and maintenance of long range evolutionary trends. As to the mechanism of evolution, the lamarckian hypothesis might be neglected for lack of positive evidence and the attrogenetic view disregarded until it was seen how far the theory of natural selection would go. Natural selection was the only hypothesis (apart from creationist or mystical-vitalist ones) that would help account for any adaptive character the origin of which involved several separate steps. After a period in which mendelism and natural selection appeared to be antagonistic, progress in genetics, aided by mathematical analysis, was once more favoring a selectionist interpretation. It was now realized that mutations might be of any extent, so that, by selection of very small ones, evolution might be very gradual. Further, it was recently discovered that the effects of mutation might be radically altered according to what other genes were present. Thus, through the selection of the appropriate combination of modifying genes, evolution might be made still more continuous.

The origin of species took place in several distinct ways. The chief three might be called the divergent, the convergent and the reticulate. Divergence was usually consequent on the isolation, either geographic or physiologic, of two stocks and was always gradual. Convergent species-formation was so far known only in plants; it arose suddenly by chromosome doubling after hybridization. In reticulate species formation, diverging stocks were crossed and produced new combinations, so that the lines of ancestry formed a network. One type was found in such plants as willows and roses, another in the human species. Analysis revealed the curious fact that, so far as one could be sure of a negative proposition, the course of evolution up to its present phase of conceptual thought and speech could not have occurred along any other line. It could have been realized only in a vertebrate, among vertebrates only in a mammal, and in mammals only in one with a long arboreal past and the characteristic of producing only one offspring at birth.

#### THE DIET OF THE PEOPLE

Sir John Orr said that an international committee of physiologists had reported that a daily supply of 1⅗ pints of milk, one-fourth pound of meat, fish or poultry, one egg, an ounce of cheese, half a pound of potatoes, one-fourth pound of vegetables and legumes would provide all the proteins, minerals and vitamins which a mother needed. When this diet and a corresponding one for children were compared with the diet common in this country, the protective foods were hopelessly inadequate in the lowest income group. As income rose the diet approached closer and closer to the optimal standard, but the diet of nearly half the population was below this. Sooner or later an optimal diet would be available for everybody. A committee had recommended measures to bring milk consumption up to a level roughly the same as that recommended by the international committee. The present consumption of milk was less than half a pint per head daily. The average consumption of eggs should be raised from four to seven a head weekly. The greatest shortage was in fruit and vegetables.

## PARIS

*(From Our Regular Correspondent)*

Oct. 25, 1936.

### Surgical Treatment of Pulmonary Tuberculosis

Almost the entire June 30 and July 7 sessions of the Académie de médecine were devoted to a discussion of the surgical treatment of pulmonary tuberculosis by phthisiologists and surgeons well qualified in this rapidly developing field.

The first paper was by Prof. Emile Sergent and two of his associates, Pruvost and Mignot, who emphasized the necessity of close medicochirurgical cooperation. They stated that an artificial pneumothorax offered the most effective means of assuring immobilization of the lung and that surgery is indicated only when collapsotherapy is not applicable, after having been given a preliminary trial. Operation also is indicated when adhesions form following an insufflation and when the lesion for which the pneumothorax has been done is still active. In reviewing statistics, one must bear in mind that not only operative but also therapeutic results must be considered.

The division of bands binding the lung to the chest wall, diaphragm or mediastinum was first proposed by Jacobeus as aiding an artificial pneumothorax by permitting the lung to collapse. It is not applicable to the extensive partial symphysis that may exist from the beginning of the pneumothorax treatment or be secondary to the latter. The best methods of diagnosis of the existence and location of true bands are radiography and pleuroscopy. In unilateral pneumothorax, the operative division of a band is indicated if it keeps a diseased lobe from collapsing and the expectoration is positive for tubercle bacilli. In bilateral pneumothorax cases, division of bands that interfere with the collapse of the lungs is indispensable. The contraindications to the division of such bands are activity of the pulmonary lesion as well as acute or chronic pleurisy. One should never operate too soon because of the danger of pleural complications and because of the fact that the bands are often very short and too vascular. As additional reasons for not operating too early on bands are the difficulty of compressing the lesions and the possibility that there may be secondary localizations. On the other hand, division of bands should be carried out very early in cases of bilateral pneumothorax in order to have a rapid collapse of the lungs. Division of bands may be encountered as an emergency measure in cases of severe

hemoptysis, extension of a cavity beneath the pneumothorax, rapid symphysis in a recent pneumothorax, certain lung perforations or pregnancy.

As tó operations on the phrenic nerve, some have proposed as a routine to do a phrenicectomy following an unsuccessful collapsotherapy before attempting a thoracoplasty. Now, one cannot regard indifferently a more or less definite paralysis of the diaphragm and thus diminish the value of the base of the lung when the latter is normal and thoracoplasty can be done later.

A careful radioscopy should precede a phrenicectomy, because a cavity in the central part of the upper lobe, relatively isolated and mobile, will probably not be influenced by such an operation. On the other hand, a cavity in the lower lobe that is constantly being drawn downward during inspiration will be favorably influenced by a phrenicectomy. To be successful, a considerable length of the phrenic should be removed and, if the paralysis is insufficient, the subclavian nerve must also be resected. Simple division, crushing or alcoholization of the phrenic nerve is followed by a paralysis, which may last from a few months to one or two years. Such temporary operations are reserved by the authors for such cases in which a thoracoplasty will probably be done later or the lesion although active tends to become stabilized and a thoracoplasty can probably be done a little later. The cases in which operations on the phrenic nerve promise favorable results are recent well localized lesions and nonencysted recent solitary cavities surrounded by parenchyma that is but little infiltrated. Apicolysis finds a limited field. It is indicated in quite small circumscribed relatively dry lesions presenting a tendency toward spontaneous retraction. Such lesions are frequently found in the apexes (supraclavicular regions) surrounded by normal parenchyma in patients whose general condition is a contraindication to a more extensive procedure. It can be employed also in association with other measures to collapse the lung.

Thoracoplasty should never be considered unless the lesions are unilateral and have not been active for from twelve to eighteen months, the patient is afebrile or nearly so, and the heart, which often is involved in chronic forms of tuberculosis, is in good condition. Thoracoplasty is to be avoided in destructive, caseating, active tuberculosis and employed only in cases in which the healing process is already manifested by the limitation of cavities and retractile sclerosis. A sanatorium should be one's first choice as the place in which thoracoplasty is to be performed. The most favorable cases are those in which the cavity is of moderate size, located rather near the surface and easy to collapse without much damage to the adjacent lung. The larger and more deeply seated the lesions, the more doubtful the result. It is a question whether one should attempt a thoracoplasty when sanatorium treatment has not improved the general condition, when there are remittent rises of temperatures, and when the lesions are not yet well localized. This holds also for those with large cavities with much secretion and emptying poorly, and for patients in whom the opposite lung is still under suspicion or at least still active. Old pneumothorax or oleothorax cases complicated by empyema and perforation can be greatly improved by thoracoplasty, provided the opposite lung is intact, the general condition is good and a preliminary pleurotomy is carried out.

The second paper was by Leon Berard of Lyons, who agreed with Sergent and his associates that, aside from cases of severe hemoptyses which persisted in spite of all treatment, thoracoplasty should be done only for inactive pulmonary lesions without pleural complications and preferably for lesions with a tendency to sclerosis, or with small cavities. The operation is indicated in only about 5 to 10 per cent of all cases. The number of ribs and the extent of each to be resected vary with the individual case. The immediate postoperative mortality has been reduced to from 4 to 8 per cent but nevertheless the later pulmonary complications cause it to rise during the first four months to 15 per cent. The mortality in sanatoriums where the patients have been well observed and prepared is only 10 to 12 per cent and the favorable end result as high as from 70 to 80 per cent, whereas in city hospitals the mortality rises to from 25 to 30 per cent and the favorable end results drop to from 50 to 60 per cent. This difference is due to the fact that hospital patients have not been given the preparatory rest and food which a sanatorium treatment gives.

The last paper of the June 30 meeting was by Robert Monod, a Paris surgeon who has had a large experience in resections of the lung. He raised the question whether intrapleural procedures should not be considered in cases in which pneumothorax and thoracoplasty have failed. In some cases partial resection of a lobe, even lobectomy or pneumectomy, might be seriously considered in view of recent more favorable results in nontuberculous conditions of the lung. One encounters solitary cavities of tuberculous origin well isolated by a fibrous shell of tissue from the adjacent normal parenchyma. Lobectomy hence could be justified in the following special cases: 1. Persistence or tendency to enlargement of a cavity in a collapsed lobe in which reexpansion as the result of a former thoracoplasty is no longer possible. 2. Persistence of a cavity the obliteration of which has not followed several thoracoplasties.

The discussion was continued at the July 7 meeting of the Académie de médecine by other surgeons who have had a large experience in this special field. Bernou and Fruchaud of Lyons gave the technic of partial thoracoplasty for lesions involving the pulmonary apexes. Such an operation is followed by an ample collapse of the lung and the operative mortality is very low, whereas rib resections that are too extensive in either a vertical or a horizontal manner are often followed by a very high mortality, owing to the sudden emptying of a septic pulmonary parenchyma or to serious disturbances of the thoracic equilibrium (mediastinal displacement with its action on the large vessels and opposite lung). This is true of thoracoplasties involving the first, fourth, fifth and sixth ribs at one sitting, as well as resections of the same ribs that extend very far anteriorly, if done at a single sitting. On the other hand, it is a mistake to divide operative intervention into too many steps or sittings, because in the intervals too much induration and ossification of the chest wall take place, and it is especially to be noted that the pulmonary collapse resulting from too many sittings is not very satisfactory. Every operation is followed by a rise of temperature and lighting up of tuberculous lesions, which exhaust the patient.

The second paper was by the thoracic surgeon A. Maurer and his associate Rolland on the real value of thoracoplasty. In the early period, eleven or twelve ribs were resected with a resultant high mortality rate. Maurer was one of the first, during a second period, to point out that a larger portion of a rib should be removed, especially in the apical region, where the entire first and 15 to 18 cm. of the second and third ribs respectively were resected. Up to April 1935 the plan was to operate in several sittings on lesions that were quiescent, attack only one side, and individualize for each case. Up to that date only subperiosteal resections were done, but the rapid formation of new bone necessitated making the intervals between operations as short as possible. For some time Schoemaker has proposed destruction of the periosteum with solution of formaldehyde to overcome these new bone formations. A little later, Maurer substituted complete removal of the periosteum. Since this procedure has been employed by the authors, one can lengthen the intervals between sittings and thus select a favorable time, so that 518 patients have been operated in 1,342 sittings. The operative mortality has been very low

(3 per cent) even in public hospital cases. There have been 80 per cent good end results in sanatorium cases and 55 per cent in public hospital services.

Prof. E. Rist, phthisiologist, spoke on the indications for phrenicectomy. He said that the value of operations for the temporary or permanent exclusion of the action of the phrenic nerve had perhaps at times been exaggerated but, on the other hand, they had been discredited to an extent that was not justified. These operations occupy today a place that is by no means negligible. It was observed in the early period that a simple phrenicectomy was followed by a rapid regeneration of the nerve and that, as a result, complete paralysis of the diaphragm failed to follow. The classic procedure at present is to remove about 12 cm. or more of the nerve in order to prevent regeneration. In addition, the subclavian nerve and scalenus muscles are also divided. Cordey and Philardeau have substituted alcoholization of the nerve to secure a temporary paralysis of the nerve and to perform, if necessary, a phrenicectomy later. In fact, such an alcoholization has been followed in some cases by permanent paralysis, and it has been found that a regeneration may follow an exeresis of the nerve.

All present-day collapsotherapy measures are based on a theoretical conception of pathologic physiology, but the results have not confirmed such a conception; hence empiricism plays an important part in all collapsotherapy procedures. This is as true of artificial pneumothorax as of thoracoplasty, and incomparably so of artificially produced paralysis of the phrenic nerve. The primary hypothesis was that section or exeresis of the phrenic nerve on the affected side would result in immobilization of the corresponding half of the diaphragm in a marked expiratory position and subsequent reduction in volume of the lung, the lower lobe of which would be immobilized. Thus, in cases in which pneumothorax became impossible to carry out because of pleural adhesions, an incomplete collapse could be obtained by phrenicectomy. Experience, however, has shown that, after the latter, an incomplete immobilization resulted because of paradoxical movements and radioscopy revealed that the paralyzed diaphragm moved in a direction opposite to that of the normal, the muscle rising during inspiration and descending during expiration. This inversion of the normal rise and fall is the most reliable radioscopic evidence of a paralysis of the diaphragm, whereas normal movements show that the motor innervation of the diaphragm has undergone restitution.

Furthermore, there is no parallelism between the reduction of volume of the lung and the efficacy of phrenicectomy. One can observe that tuberculous lesions heal in an incredible manner when the diaphragm has risen to only an insignificant degree. On the other hand, marked ascension of the diaphragm may not have any therapeutic influence on the pulmonary lesions. A priori, the only lesions that can be benefited are those in the lower lobe near the diaphragm, and it was found clinically, at first, that remarkably favorable results followed a phrenico-exeresis. The upper lobe is but little influenced by the inspiratory lowering of the diaphragm. Further experience, however, has demonstrated that apical lesions cicatrize and disappear at times soon after phrenico-exeresis; hence the indications for this operation are by no means limited to lesions at the base of the lung. The truth of the matter, according to Rist, is that our knowledge as to what is accomplished when the phrenic nerve is sectioned is still imperfect. It is possible that such an operation has an influence on the unstriated muscle fibers of the bronchi and of the parenchyma itself. Phrenicectomy yields the best results, however, in lesions situated near the base of the lung. Some phthisiologists (as Morin of Leysin) have been so well satisfied with phrenicectomy in apical lesions that they prefer it to artificial pneumothorax in such patients. Rist believes that the latter method of collapse should be first given a trial because a phrenicectomy can always be done later, whereas the reverse is not true, because of the pleural adhesions that may follow an unsuccessful phrenicectomy, rendering an artificial pneumothorax impossible. Hence phrenicectomy is indicated only if it is impossible to collapse the lung by artificial pneumothorax.

Thoracoplasty should be attempted only under the most favorable condition, that is, when there is no longer any fever, the general condition is good, and suspected lesions in the opposite lung show evidence of inactivity. In such cases, during the waiting period, one may employ, as a useful preparatory measure, an alcoholization in order to obtain a temporary paralysis of the phrenic nerve. Even the permanent paralysis after a phrenicectomy is compensated for to a great extent by the lower intercostal and similar muscles. In the present state of development of collapsotherapy, phrenicectomy should not be discarded. Although of less value than artificial pneumothorax, it replaces the latter when it is a failure because of pleural adhesions. In cases in which thoracoplasty is impossible, the only available procedure is phrenicectomy, but the latter has its limits, which one must respect.

## BERLIN

*(From Our Regular Correspondent)*

Oct. 5, 1936.

### The Convention of Pediatricians

This year's convention of the German Pediatric Society was held at Würzburg. Professor Rietschel, the chairman, included in his address of welcome certain remarks that reflect the present-day trend in Germany. He raised the question of whether the pediatrician is truly a specializing physician in the strict sense of the term. A positive development, he said, has taken place; the actively practicing family physician is now so well trained in pediatrics that the services of the specialist in children's diseases, at least in the small and medium sized towns, may not be necessary. However, it may be supposed that pediatrics occupies as much a place in the education of the medical student as internal medicine.

The first major topic was "Antitoxic and Bacterial Serums." Gundel of Berlin emphasized that serotherapy is a biologic method in the truest sense of the word. Serotherapy still remains of indubitable fundamental worth (despite the fact that skeptical voices are raised in present-day Germany).

Speaking as a clinical pediatrician, Kleinschmidt of Cologne submitted a carefully formulated discussion based on his experimental and clinical investigation. He mentioned the many fruitless attempts, the many disappointed hopes, of the last ten years but declared that nevertheless restricted utilization of specific serums had become firmly established by experimentation. In this statement he struck at one of the weightiest principles of so-called Nature Medicine. Since it has been proved that the formation of antitoxin cannot be considered the curative factor in diphtheria, Kleinschmidt has for a long time been of the opinion that it is the nonspecific defense mechanisms of the organism that overcome the disease. The diminished effectiveness of antitoxin is particularly apt to manifest itself in cases of so-called toxic diphtheria and this is apparently due to hypersensitivity to toxin. Nevertheless the early injection of serum must not be discontinued for the present at least. The effectiveness of antitetanic serum is incontestable. Administration of antiscarlatinal serum is many times indicated. It apparently works in this way, however: that it alters the reaction of the organism against the pathogenic agent. Kleinschmidt questions the prophylactic action. Antidysenteric serum is of importance as antitoxic Shiga-Kruse serum; otherwise its effect is frequently only nonspecific. Administration of anticolon bacillary serum has not been proved superior to other measures in the diarrhea of

nurslings. The use of antipertussis serum has been unsatisfactory. The mortality from epidemic meningitis has not to date been definitely reduced through serotherapy. The outlook for success with type-specific serums is not great. Type I monovalent antipneumococcus serum is effective in lobar pneumonia and its prognosis in children is of itself good; the other type serum has to date been unproductive of success. Kleinschmidt closed his discussion with a statement the truth of which must be conceded by all critics: There are, he said, a whole group of precise indications for the application of specific serums, and no physician, if such indication is present, has the right to withhold from his patients the specific protective and curative serum. The significance of the organism's natural defense mechanisms and the importance of their influence should be fully recognized.

Schmidt-Burbach of Dessau then gave a report on comparative experimentation with various antidiphtheric inoculation serums. The best immunizing effect is produced by precipitate vaccine, alum-toxoid in particular. The Anhalt Serum Institute at Dessau now prepares an alum toxoid that contains 95 protective units per cubic centimeter; namely, 1 cc. of this vaccine has the same effect as 95 cc. of standard toxoid. Consequently, a single subcutaneous injection of 1 cc. suffices for protective inoculation. The serum reactions are slight. The protection appears in the third week. A simultaneous passive immunization undertaken in order to produce an immediate protection may be accomplished by the administration of 1,000 units of diphtheria antitoxin serum. The last named vaccine has already passed official inspection. The delegates were not all of one opinion with reference to the results of active diphtheria immunization.

The second major topic discussed was "Anemias and Hemorrhagic Diatheses in Childhood." M. B. Schmidt, pathologist, of Würzburg, who spoke first, differentiates two forms of destruction of the erythrocytes in anemia: the intracellular decurrent dissolution chiefly in the splenic pulp and the extracellular true hemolysis. The first type corresponds with the physiologic senile decomposition of the erythrocytes; it has its basis in the physical-chemical alterations in the stroma (colloid contraction) and is determined by the condition of the bone marrow, not by a change in the circulating blood. The second or extracellular type is accompanied by icterus, increase in the number of serum bilirubin and so on; it depends on a chemical injury to the lipoid-containing surfaces and contributes to the continuance of an injury to the peripheral circulation independent of whether the erythrocytes leave the bone marrow in a normal or deficient condition. It is possible that the human blood pigment is not uniform, that there is a pathologic hemoglobin. The stroma, however, plays a leading part in the origin of anemia. Constitutional deficiencies in the bone marrow's capability of reaction are factors. Disturbance of the balance in the blood picture in ordinary so-called secondary anemias consists of increased productivity; that is, an increased new formation and an increased disintegration as a result of the rapid aging of the erythrocytes. The disorder depends also on the qualitative disturbance of erythropoiesis in the marrow, even if the damage extends to the peripheral blood as well. There is also a decline in the number of the erythrocytes and in the amount of hemoglobin that takes place without increased disintegration, the result of the insufficient activity of the bone marrow. There are all gradations, from total disappearance of all cell systems of the marrow to pure hypochromic anemia. The cause of the last named disease in both children and adults is one of the achylously conditioned "chloranemias," deficiency in iron. Iron serves not only as material for hemoglobin but also as a stimulus to cell formation in the bone marrow and in the whole body. Only in the last named function may the iron be supplemented by copper. M. B. Schmidt recognizes two possible forms of hypersplenic anemia: (1) that resulting from the physiologic, probably hormone, checking of the erythropoiesis of the splenic tissue and (2) that resulting from true hemolysis, the physiologic pattern for which is more uncertain. The anemia pseudoleukemia of children is etiologically not uniform; Schmidt considers the accompanying rachitis only as a stigma of the variant constitution. The unusual thing about the reaction is that erythropoiesis within and without the bone marrow runs its course like an erythroblastosis and that, on the other hand, the intramedullary and extramedullary leukopoiesis in any event assumes a hypertrophic character, which appears out of proportion to the contingent injury to the colorless cell systems. Among the clinical reports, Fanconi of Zurich discussed the primary anemias and erythroblastosis in childhood. In a number of the primary anemia cases, familial and racial factors exist; for example, in round-cell anemia (hemolytic icterus), marble bones disease, Cooley's anemia, sickle-cell anemia and congenital anemia of the pernicious variety. Primary disturbances in the bone marrow lead in greater or lesser degree to alterations in the bones, and these changes in turn lead to characteristic cranial and facial manifestations.

Rominger of Kiel spoke on secondary anemia in childhood. This disorder he designated a disturbance of the erythropoiesis through faulty nutrition, defective care of the child, intercurrent diseases and infections in particular. Essential to the development of the erythrocytes are inorganic iron, concentrates of copper, antianemic factors, hormones and vitamins. One must differentiate a hypochromic anemia and a hyperchromic anemia, a normoblastic, an erythroblastic and a leukoerythroblastic reaction. Cow's milk anemia of nurslings is an iron anemia; goat's milk anemia depends not only on iron deficiency but, according to the nutrition of the goats, on vitamin deficiency and injury to the fat, tending toward sprue. The anemia of Heubner-Herter disease is related to severe goat's milk anemia and has been established as a kind of nontropical sprue. Childhood pseudoleukemia seems not yet to be completely explained; certainly infections play an important part and lead to a subacute inflammation of the spleen with myeloid reaction and splenogenic hemolysis.

Finally, Catel of Leipzig discussed as the fourth paper on this topic the differential diagnosis of "hemorrhagic diatheses" in childhood. A majority of these disorders have nothing to do with "childhood diseases" but are to be etiologically interpreted quite otherwise, as scurvy, Osler's disease and so on. Catel distinguishes only six types of true hemorrhagic diatheses: familial hereditary hemophilia, sporadic hemophilia, purpura haemorrhagica, hereditary hemorrhagic thrombopathy and thrombasthenia, and finally congenital afibrinogenemia. A complete, thoroughgoing classification of the disease entities coming under the heading of hemorrhagic diathesis is as yet quite impossible. The best possible analysis of each indiviual case would first have to be undertaken, an analysis based on a uniform plan and exactly standardized procedures. The latter would first be worked out by a commission. A great number of individual contributions were submitted on this topic and on other aspects of pediatrics.

At the end of the congress a medical conference of the German Association for Protection of Nurslings and Infants took place. Principal topics of the papers read at this gathering were the unified administration and coordination of all infant welfare activities, breast feeding as the most vital of infant welfare problems, and care of the nursling in the lying-in hospital. Investigations carried out at Munich disclosed that, although at present almost all women attempt to suckle their infants, the period of lactation has been shortened within the last ten years. The reasons for this failure are not so much due to reluctance on the part of the mother as to defective

technic and faulty manifestation of instinct; women of a highly civilized environment should first of all be taught how to suckle. Educational courses and propaganda for mothers supplemented by the cooperative efforts of the welfare workers can do much to remedy the situation.

## JAPAN

*(From Our Regular Correspondent)*

Oct. 10, 1936.

### The National Health

The Association for Encouraging Science in Japan, in response to the general expressions of dismay about the fall in the level of the national health, held its first meeting to consider methods for coping with the regrettable situation. Medical experts from the cabinet departments, the deans of the medical departments of the imperial universities, and experts who were members of the association were present. It was decided to establish four sections of activity: eugenic, physical training, food, and clothing and shelter. The tuberculosis death rate is higher in Japan than anywhere else in the world. More than 130,000 cases of acute infectious diseases occur every year. Dysentery has shown a yearly increase. Trachoma and parasitic diseases are decreasing among students, school children and conscripts, but myopia and decaying of the teeth are increasing remarkably. Mental disease has also increased of late. The number of insane at present is 83,366, which means that there are more than twelve cases of insanity per 10,000 of population. The number of conscripts who pass the physical examination is decreasing every year, and the military authorities are afraid that half of the youth will be unable to pass the examination next year; in ten years this would bring about an alarming situation.

### New Policy of Red Cross Society

The Japan Red Cross Society has decided on a new policy which aims to exercise a central control over the financial administration of the local branches, the administration of which heretofore has been independent of the central office. This situation caused competition between the branch offices in the different districts. It was at the same time a source of injustice, for prominent local persons, conspiring with the branch officials, often attempted to take advantage of the society for their own interest. The society will build two sanatoriums, one in Tokyo and the other in Hiroshima, for tuberculous persons who are forced to retire from military service. The former sanatorium will have 1,000 beds, the latter 1,500 beds. The new policy is estimated to require the expenditure of more than 16,000,000 yen every year.

### Number of Medical Workers

The Home Office reports, according to the inquiry made at the end of last year, that the total number of physicians is 57,581. This is a remarkable increase, being 2,565 over the previous year and an increase of 6,789 over the year 1933. It is expected that the total will be 60,000 before long. Of these, 55,597 are practitioners, as against 49,301 in the previous year, showing an increase of 2,296. Every 10,000 of population has 7.45 practitioners, while in the previous year it had 12.45. On an average, there is one practitioner to 1,342 of population; 785 in large cities, 2,049 in towns or villages. The number of the midwives is 59,560, an increase of 1,280 over the previous year. Every 10,000 of population has 8.60 midwives. The number of nurses is 106,857. The number of dentists is 20,010, an increase of 1,102 as compared with the previous year, and out of them 18,428 are engaged in practice. Every 10,000 of population has 2.66 dentists. The number of pharmaceutists is 24,957. The number of irregular practitioners is 20,204, of whom 5,970 are engaged in electrotherapy, 1,466 in ray treatment and 2,731 in heat treatment.

### A Rare Medical Diary

That the Dutch language was studied in Japan as far back as the middle of the eighteenth century is shown in the "Beginning of Dutch Study," written by Gempaku Sugita in 1815. This book has been valued as the key to the secret of the early stage of Dutch medicine introduced into this country in that century. Unfortunately the life of the author was only dimly known for lack of a biography. Recently by accident a priceless diary consisting of nine volumes, each containing about fifty pages of Japanese paper, was found in the library of the author's great-great grandchild. It contains records of daily events, chiefly concerning medicine during about twenty years in the middle of the eighteenth century. The worm-eaten pages are hard to read, and every means is now being employed to mend them. It contains such details as the price of medicine sold by the doctor to patients at that time, and the fee for a doctor's visit. It is miraculous that such a document has escaped the frequent disasters in Tokyo.

## MOSCOW

*(From Our Regular Correspondent)*

Oct. 26, 1936.

### Training the Junior Medical Staff

Only recently has the question of training the junior medical staff been given much attention. To improve these bad conditions, the Council of People's Commissars issued September 8 a decision about the training of junior medical practitioners ("feldshers"), midwives, laboratory workers and others. The existing medical "technikums"—middle schools—will be reorganized in: (*a*) junior medical schools with a three year course, (*b*) midwifery schools with two years' study, (*c*) schools for medical nurses and nursery nurses and (*d*) one year courses for medical laboratory workers. In the coming year, 158,270 persons will be enrolled in all those schools.

For the four year training of stomatologists there will be two new stomatologic institutes founded at Kazan and Smolensk. Dentists will be trained in dental schools for three years. Pharmaceutists of high qualification are to be trained in special pharmaceutic institutes with a four year course. Assistant pharmaceutists are to be trained in special schools with a three year course, including one year of practical work. An apprenticeship for assistant pharmaceutists in drug stores is permitted. This year 4,720 persons will be admitted to pharmaceutic schools and as apprentices.

### The Moscow Cosmetic Institute

The Institute of Cosmetics and Hygiene will be opened in November in Moscow. It will provide treatment for the skin and hair, and gymnastics for the correction of obesity. The work of the institute will be under the guidance of dermatologists and physical therapists, who will also do research work.

### Completion of Large Medical Encyclopedia

Some days ago the publication of the thirty-five volume edition of the Large Medical Encyclopedia was completed. It was accomplished under the auspices of Prof. Nicolas A. Semashko, former public commissar of health, and was begun eight years ago. More than 1,700 authors participated in the compilation of the encyclopedia, including twenty academicians, 692 professors and 1,006 scientific workers. The volumes have 6,396 articles containing 80,000 scientific terms and cover ninety-six subjects of medicine or closely allied sciences.

### D'Herelle to Direct Institute

An all-union institute of bacteriophage is being erected in Tbilisy (former Tiflis, Georgian Soviet Republic). The founder of the bacteriophage theory, Felix d'Herelle, will be the director of this institute.

## Marriages

EDMUND MURDAUGH ELLERSON, Washington, D. C., to Miss Elsie Boyd Tucker of Richmond, Va., September 26.

HARRY HANSEN, Plainfield, N. J., to Miss Flora Gray Fraser of Englewood in Palisades Park, September 19.

EUGENE PAUL CAMPBELL, Monrovia, Calif., to DR. REBA M. LOWE of Reisterstown, Md., October 3.

EMIL UHLEIN DILLENBACK to Mrs. Fuchsia Carrick Fouser, both of Springfield, Mass., October 31.

EDWARD H. WYMAN to Miss Martha M. Mulford, both of Burlington, N. J., September 19.

NICHOLAS J. CHETT, Reading, Pa., to Miss Margaret Trotman in Elizabeth, N. J., recently.

FRANCIS EMORY BELL, Palatka, Fla., to Miss Lourline Seyden of Savannah, Ga., November 8.

CLARENCE SAMUEL BRANSON to Miss Audeen Mervin, both of St. Joseph, Mo., July 20.

ALBERT C. SANTY, New York, to Miss Rosalyn Walsh of Garfield, Ga., September 19.

## Deaths

**Edwin Richard Hodge,** Brooklyn; Georgetown University School of Medicine, Washington, D. C., 1892; veteran of the Spanish-American War, the Philippine Insurrection and the World War; served at the Army Medical Museum as an anatomist and later as chemist from June 1890 until Aug. 10, 1917, when he resigned to enter on active duty as an officer of the U. S. Army medical corps reserve; was commissioned a captain during the World War, during which time he was in charge of the chemical laboratory at the Army Medical School, Washington, D. C., and until Nov. 30, 1920, when he was honorably discharged from the military service; was reinstated in the position of chemist, retaining charge of the laboratory at the Army Medical School, and later at the New York General Depot, Brooklyn, until his civil service retirement June 30, 1932; formerly a member of the tenth revision committee of the U. S. Pharmacopeia; aged 76; died, September 18, in the Veterans Administration Facility, New York, of pneumonia.

**Gustavus Ingomar Hogue** ✠ Milwaukee; Northwestern University Medical School, Chicago, 1899; fellow of the American College of Surgeons; formerly associate professor of ophthalmology, Milwaukee Medical College and the Marquette University School of Medicine; veteran of the Spanish-American and World wars; attending ophthalmologist to the Milwaukee County Hospital, Milwaukee, and the Milwaukee Hospital for Mental Diseases, Wauwatosa; ophthalmologist-in-chief to the Mount Sinai Hospital; aged 64; died, September 28, of coronary occlusion.

**George Metzger Todd,** Toledo, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1894; president of the Association of Surgeons of the Chesapeake and Ohio Railway; formerly medical attaché of the embassy in London, England; at one time on the staff of the City Hospital, Akron, and city health commissioner of Akron; formerly visiting gynecologist to St. Vincent's, Toledo, Women's and Children's, and County hospitals; aged 65; died, September 5, of intestinal obstruction.

**Carl Eugene Munger,** Waterbury, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1883; member of the Connecticut State Medical Society and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; consulting laryngologist to the Waterbury Hospital; aged 78; died suddenly, September 26, of heart disease, while on the Cunard-White Star liner *Samaria*.

**John V. Gallagher,** Cleveland; Western Reserve University Medical Department, Cleveland, 1891; past president of the Cleveland Academy of Medicine; fellow of the American College of Surgeons; formerly associate professor of surgery, Cleveland College of Physicians and Surgeons; visiting surgeon to St. Alexis and St. John's hospitals; consulting surgeon to St. Ann's Maternity Hospital; aged 71; died, September 26, of pneumonia.

**Royal Stuart Adams** ✠ San Antonio, Texas; University Medical College of Kansas City, Mo., 1912; member of the Associated Anesthetists of the United States and Canada; past president and secretary of the Bexar County Medical Society; secretary-treasurer of the Bexar County Library Association; aged 46; died, September 21, of cerebral hemorrhage, chronic nephritis and arteriosclerosis.

**George A. Wash,** Gibson City, Ill.; University of Louisville (Ky.) Medical Department, 1894; member of the Illinois State Medical Society; for ten years a member of the city board of health and board of education; past president and secretary of the Ford County Medical Society; member of the medical staffs of St. Joseph's and Mennonite hospitals, Bloomington; aged 68; died, September 21.

**Theodore Calvin Hays,** Canton, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1889; at one time professor of gynecology and obstetrics at his alma mater; past president of the school board and formerly city physician; served during the World War; on the staff of the Graham and Murphy Hospital; aged 71; died, September 21, of pneumonia.

**Charles Christian Walker,** Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; member of the American Academy of Ophthalmology and Oto-Laryngology; on the staffs of the Harper Hospital and the Children's Free Hospital; aged 61; died suddenly, September 28, of heart disease.

**Walter D. Haynie,** Kingston, Okla. (registered by Oklahoma state board of health, under the Act of 1908); member of the Oklahoma State Medical Association; president and formerly secretary of the Marshall County Medical Society; aged 60; died, September 21, in the Wilson N. Jones Hospital, Sherman, Texas.

**Gaspard Lemire Marsolais,** St. Eustache, Manit., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1894; Laval University Faculty of Medicine, Quebec, 1895; aged 64; died, September 14, in St. Boniface (Manit.) Hospital, of coronary thrombosis.

**John Wesley Hutchison** ✠ Saginaw, Mich.; Chicago Homeopathic Medical College, 1897; fellow of the American College of Surgeons; past president of the Saginaw County Medical Society; member of the senior staff of the Saginaw General Hospital; aged 66; died, September 13, of coronary occlusion.

**George Francis Patton,** New York; Baltimore Medical College, 1910; served during the World War; on the staffs of the Bronx Eye and Ear Infirmary; and the Manhattan Eye, Ear and Throat Hospital; honorary surgeon of the New York Police Department; aged 49; died, September 14, of heart disease.

**William Lester Barnes** ✠ Lexington, Mass.; Harvard University Medical School, Boston, 1904; school director; at various times town physician, health officer, and chairman of the board of health; aged 58; died, September 28, at a hospital in Boston, of cerebral thrombosis, diabetes mellitus and hypertension.

**William Patrick O'Rourke,** Los Angeles; Toledo Medical College, 1897; formerly medical inspector for the health department of Seattle and medical director of the city's parochial schools; at one time superintendent of the King County Hospital, Seattle; aged 70; died, September 27, in Las Vegas, Nev.

**John James Mason,** Vancouver, B. C., Canada; Western University Faculty of Medicine, London, Ont., 1902; past president of the Vancouver Medical Association; fellow of the American College of Surgeons; gynecologist and obstetrician to the Vancouver General Hospital; aged 55; died in September.

**Darwin T. Powelson,** Johnstown, Pa.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897; at one time president of the board of health of Homestead, and past president and secretary of the school board; aged 64; died, September 27, in the Conemaugh Valley Memorial Hospital.

**Harry Leslie Langnecker** ✠ San Francisco; Johns Hopkins University School of Medicine, Baltimore, 1906; associate professor of medicine (physical therapy), Stanford University School of Medicine; served during the World War; aged 58; died, September 23, in the Palo Alto (Calif.) Hospital .

**Edward Reginald Secord,** Brantford, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1900; past president of the Ontario Medical Association; fellow of the American College of Surgeons; surgeon to the Brantford General Hospital; aged 57; died, September 24.

**Samuel Henry McKewen,** Windsor, Vt.; College of Physicians and Surgeons, Boston, 1906; member of the Vermont State Medical Society; on the staff of the Windsor Hospital; aged 60; died, September 10, in the Claremont (N. H.) General Hospital, of acute dilatation of the heart.

**William Jefferson Mockler,** Springboro, Ohio; Ohio Medical University, Columbus, 1902; member of the Ohio State Medical Association; aged 60; formerly on the staff of the Miami Valley Hospital, Dayton, where he died, September 23, of arteriosclerosis and bronchopneumonia.

**Kenneth Kenyon Linson,** Woodhaven, N. Y.; Baltimore Medical College, 1907; during the World War served as chief medical examiner for a draft board; member of the staff of the Mary Immaculate Hospital, Jamaica; aged 56; died suddenly, September 10, of angina pectoris.

**Lenthal Azel Bollman** ✠ Dallas, Ore.; Willamette University Medical Department, Salem, 1906; fellow of the American College of Surgeons; member of the staffs of the Dallas (Ore.) Hospital and the Salem (Ore.) General Hospital; aged 63; died, September 29, of pneumonia.

**William Ferguson Peebles,** Clinton, Ky.; Hospital College of Medicine, Louisville, 1905; member of the Kentucky State Medical Association; served during the World War; aged 58; died, September 11, in the Illinois Central Hospital, Paducah, of carcinoma of the pancreas.

**Harold Edson Miner,** Springfield, Mass.; University of Maryland School of Medicine, Baltimore, 1905; member of the Massachusetts Medical Society; district health officer for the state department of public health; aged 54; died suddenly, September 15, of coronary thrombosis.

**Leighton Wherry Jones** ✠ Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1897; for many years city physician; formerly on the staff of the Memorial Hospital; aged 75; died, September 18, in the Lee Hospital, of septicemia following an infection of the scalp.

**Daniel F. Jackson** ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1902; fellow of the American College of Surgeons; served during the World War; member of the staff of the Montefiore Hospital; aged 57; died, September 6, of coronary thrombosis.

**Archibald Leonard Offield** ✠ Burlingame, Calif.; Cooper Medical College, San Francisco, 1905; fellow of the American College of Surgeons; formerly superintendent of the Community Hospital, San Mateo; aged 59; died, September 17, of endothelioma of the pleura.

**Thomas Albert Watterson,** Manotick, Ont., Canada; University of Toronto Faculty of Medicine, 1904; served with the Canadian forces during the World War; formerly on the staffs of St. Luke's Hospital and the Civic Hospital, Ottawa; aged 61; died, September 3.

**William Ridgway Rothe** ✠ Cincinnati; Temple University School of Medicine, Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; medical examiner for the Pennsylvania Railroad; aged 47; died, September 8, at his home in Newport, Ky.

**Edwin Curtis Garvin,** Cleveland; Western Reserve University Medical Department, Cleveland, 1894; member of the Ohio State Medical Association; served during the World War; aged 64; died, September 25, in St. Alexis Hospital, of pneumonia.

**Jesse Lee Prince,** Stevenson, Ala.; Medical Department of the University of Alabama, Mobile, 1899; member of the Medical Association of the State of Alabama; aged 61; died suddenly, September 29, of cerebral hemorrhage and arteriosclerosis.

**Charles C. Nail,** Moore, Okla.; Arkansas Industrial University Medical Department, Little Rock, 1889; formerly a druggist; member of the school board; aged 76; died, September 26, in a hospital at Oklahoma City, of bronchopneumonia.

**Walter Parker Irwin,** Florence, Kan.; Western Eclectic College of Medicine and Surgery, Kansas City, 1909; Kansas City Hahnemann Medical College, 1910; member of the Kansas Medical Society; aged 63; died, September 12, of heart disease.

**David F. Morton,** Perryville, Mo.; Missouri Medical College, St. Louis, 1883; past president of the Perry County Medical Society; aged 78; died, September 4, in the Barnes Hospital, St. Louis, of carcinoma of the bile ducts and myocarditis.

**Henry Adolph Owenson,** Arnegard, N. D.; Keokuk Medical College, College of Physicians and Surgeons, 1906; member of the North Dakota State Medical Association; formerly health officer; aged 51; was found dead, September 11.

**Samuel Rankin Ratliff,** Vancleave, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1901; member of the Mississippi State Medical Association; aged 63; died, September 16, of carcinoma of the stomach.

**Amedee Marien,** Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1890; emeritus professor of clinical surgery at his alma mater; on the staff of the Hotel Dieu de St. Joseph; aged 70; died, September 1.

**James Henry Dixon,** Portsmouth, N. H.; Medical School of Maine, Portland, 1898; formerly city physician and chairman of the board of health; aged 58; died, September 20, in the Portsmouth Hospital, of cerebral hemorrhage.

**Robert Bruce Layman,** Knoxville, Tenn.; University of Louisville (Ky.) Medical Department, 1898; member of the Tennessee State Medical Association; served during the World War; aged 64; died suddenly, September 26.

**J. Ernest Dowdy,** Sandy Ridge, N. C.; University of Maryland School of Medicine, Baltimore, 1909; aged 50; died, September 19, in a hospital at Martinsville, Va., of carcinoma of the left axilla due to roentgen ray burns.

**Benjamin W. Best,** Greensboro, N. C.; College of Physicians and Surgeons, Baltimore, 1884; aged 75; formerly on the staff of the Clinic Hospital, where he died, September 24, of injuries received in an automobile accident.

**William Filmer Coy,** Vancouver, B. C., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1886; M.R.C.S., England, 1887; served with the Canadian Army during the World War; aged 73; died in September.

**John Franklin Robinson,** Manchester, N. H.; Harvard University Medical School, Boston, 1886; member of the New Hampshire Medical Society; aged 73; died, September 5, of arteriosclerosis and cerebral thrombosis.

**Arthur Charles Pariente,** New York; University and Bellevue Hospital Medical College, New York, 1932; member of the Medical Society of the State of New York; aged 27; died, September 18, of regional ileitis.

**Joseph Wilton Hope,** Hampton, Va.; Medical College of Virginia, Richmond, 1888; for many years county health officer; formerly on the staff of the Dixie Hospital; aged 70; died, September 3, of cerebral hemorrhage.

**John Ford Burnet Benton,** Valley Park, Miss.; Tulane University Medical Department, New Orleans, 1907; member of the Mississippi State Medical Association; aged 67; died, September 29, of diabetes mellitus.

**Newton I. Tibbits,** Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1884; on the staff of the Detroit Tuberculosis Sanitarium; aged 77; died, August 22, in Grand Rapids.

**Charles Fremont Brock,** Waltham, Mass.; University of Vermont College of Medicine, Burlington, 1884; aged 74; died, September 25, of cerebral hemorrhage, carcinoma of the urinary bladder and chronic nephritis.

**Alexander Randall Griffith,** Montreal, Que., Canada; New York Homeopathic Medical College and Hospital, 1891; medical superintendent of the Montreal Homeopathic Hospital; aged 71; died, September 2.

**George Henry Cowles,** Woodhull, Ill.; Rush Medical College, Chicago, 1896; aged 65; died, September 29, of coronary disease while driving his automobile, which went over an embankment into the lake.

**John Caldwell Foster,** Clarksville, Texas; University of Louisville (Ky.) Medical Department, 1869; Confederate veteran; aged 93; died, September 23, in a hospital at Paris, of cerebral hemorrhage.

**Elwyn Winslow Capen,** Monson, Mass.; Boston University School of Medicine, 1902; formerly member of the school committee; aged 60; died, September 19, of carcinoma of the prostate and bladder.

**Nathaniel Norris Allen** ✠ Houston, Texas; Kentucky School of Medicine, Louisville, 1898; member of the American Academy of Pediatrics; aged 62; died, September 22, of coronary thrombosis.

**Henry Wilkins Lewis,** Jackson, N. C.; University of the City of New York Medical Department, 1877; member of the Medical Society of the State of North Carolina; aged 80; died, October 19.

**Charles Howard Lodor,** Eustis, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1882; formerly a practitioner in Chicago; aged 77; died, October 2, in a hospital at Orlando.

**Joseph Vale Cleaver,** Akron, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1887; for many years on the staff of the City Hospital; aged 78; died, September 26.

**Orrin P. Maxson,** Weaverville, N. C.; College of Physicians and Surgeons, Chicago, 1883; formerly a practitioner in Waukegan, Ill.; aged 81; died, September 28, of duodenal ulcer and cystitis.

**Henry Charles Bikle,** York, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1936; aged 28; intern at the York Hospital, where he died, September 29, of pneumonia.

**Samuel William Greenbaum,** New York; University and Bellevue Hospital Medical College, New York, 1899; aged 61; died, September 16, of cirrhosis of the liver and bronchopneumonia.

**Daniel Webster Evans** ✠ Scranton, Pa.; College of Physicians and Surgeons of Chicago, 1894; aged 70; died, September 28, of arteriosclerotic heart disease and acute coronary thrombosis.

**W. J. Hammond,** Tellico Plains, Tenn. (licensed in Tennessee in 1906); aged 78; died, September 10, in the Fort Sanders Hospital, Knoxville, of carcinoma of the prostate and myocarditis.

**Eugene Francois Brindjonc,** Butte, Mont.; Tulane University of Louisiana Medical Department, New Orleans, 1908; aged 55; died, September 27, of a self-inflicted gunshot wound.

**Glenn Henry Miller** ✠ Omaha; University of Nebraska College of Medicine, Omaha, 1919; on the staff of the Methodist Hospital; aged 45; died, September 29, of heart disease.

**Edward F. Luckett** ✠ Cheneyville, La.; Tulane University of Louisiana Medical Department, New Orleans, 1899; aged 61; died, September 29, of coronary occlusion and hypertension.

**Harry Collier Mix,** Oak Park, Ill.; Northwestern University Medical School, Chicago, 1909; served during the World War; aged 61; died, September 14, of cerebral hemorrhage.

**Harold Eugene Rodgers** ✠ Albuquerque, N. M.; Medical College of the State of South Carolina, Charleston, 1923; aged 40; died, September 9, in St. Joseph's Hospital, of typhoid.

**James Edward Lovering,** Lethbridge, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1908; chairman of the school board; aged 64; died, August 11.

**Charles J. Turpin,** Denver; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 67; was found dead, September 2, of a self-inflicted bullet wound.

**William Parmilee Williams** ✠ Blackshear, Ga.; Bellevue Hospital Medical College, New York, 1888; aged 69; died, September 24, in the Ware County Hospital, Waycross.

**Benjamin Talbot Ferguson,** Jamestown, La.; Memphis (Tenn.) Hospital Medical College, 1904; aged 57; died, September 13, in Arcadia, of a self-inflicted bullet wound.

**John Moses Maness,** Hamlet, N. C.; University of North Carolina School of Medicine, Chapel Hill, 1909; aged 58; died, September 24, of myocarditis and cirrhosis of the liver.

**Edward Cazneau Newton,** East Milton, Mass.; Bellevue Hospital Medical College, New York, 1887; aged 73; died, September 1, of bronchial asthma and myocarditis.

**Frederic Remington,** Rochester, N. Y.; Harvard University Medical School, Boston, 1888; died, September 12, of acute lymphatic leukemia and lobar pneumonia.

**David A. Swift,** Butler, Tenn.; University of Tennessee Medical Department, Nashville, 1904; aged 59; died, September 20, in Amantha, N. C., of cerebral hemorrhage.

**Mary Ella Mann,** Nantucket, Mass.; New York Medical College and Hospital for Women, 1882; aged 77; died, September 26, of arteriosclerosis and myocarditis.

**D. Harrison Billmeyer,** Plains, Mont.; Jefferson Medical College of Philadelphia, 1884; aged 73; died, September 26, of peptic ulcer and hemorrhage of the stomach.

**Thomas Young Carter,** Westmoreland, Tenn.; University of Tennessee Medical Department, Nashville, 1905; aged 55; died, September 28, of cerebral hemorrhage.

**Arturo Cairone,** New York; Regia Università di Napoli. Facoltà di Medicina e Chirurgia, Italy, 1908; aged 53; died suddenly, September 19, of arteriosclerosis.

**Gordon Moss Gafford,** Colorado Springs, Colo.; Barnes Medical College, St. Louis, 1896; aged 73; died, September 28, of coronary occlusion and arteriosclerosis.

**Benjamin F. Wilson,** Golden City, Mo.; Eclectic Medical Institute, Cincinnati, 1882; aged 76; died, September 15, of cerebral hemorrhage and arteriosclerosis.

**Mathew McGonigal,** Loyal, Wis.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1904; aged 62; died, September 20, of arteriosclerosis.

**Benjamin Franklin Gay,** Hildreth, Neb.; University of Nebraska College of Medicine, Lincoln, 1886; aged 72; died, September 3, of cerebral hemorrhage.

**Murdoch M. Kerr,** Detroit; Detroit College of Medicine, 1899; served during the World War; aged 64; died, September 12, of carcinoma of the pancreas.

**Charles Gordon Gibson** ✠ Sioux City, Iowa; Rush Medical College, Chicago, 1900; aged 68; died, September 26, of chronic myocarditis and coronary occlusion.

**Peter Livingston Carter,** Buffalo; Pulte Medical College, Cincinnati, 1886; aged 79; died, September 13, of carcinoma of the stomach and secondary anemia.

**Bert Suter Heintzelman** ✠ Bayonne, N. J.; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 60; died, September 24, of coronary thrombosis.

**Thomas Mulligan,** New Britain, Conn. (licensed in Connecticut in 1893); Civil War veteran; aged 95; died, September 21, of cardiorenal vascular disease.

**Leo Robert Roth,** Chicago; Illinois Medical College, Chicago, 1903; aged 56; died, September 22, in St. Anne's Hospital, of self-inflicted scalpel wounds.

**Garry O. Leighner,** Cincinnati; Eclectic Medical Institute, Cincinnati, 1903; aged 63; died, September 3, in the Bethesda Hospital, of coronary embolism.

**Margaret Helen Bigby** ✠ Whittier, Calif.; University of Michigan Medical School, Ann Arbor, 1917; aged 49; died, September 26, of pneumonia.

**Emanuel Kauffman,** Hardy, Neb.; Jefferson Medical College of Philadelphia, 1889; aged 76; died, September 2, of heart disease and arteriosclerosis.

**John F. Good** ✠ New Cumberland, Pa.; College of Physicians and Surgeons, Baltimore, 1886; aged 79; died, September 19, of cerebral hemorrhage.

**William R. Callihan,** Prestonsburg, Ky.; Eclectic Medical Institute, Cincinnati, 1903; aged 60; died, September 25, of a self-inflicted bullet wound.

**Ludwig Lang,** New York; University of the City of New York Medical Department, 1890; aged 73; died, September 4, of carcinoma of the stomach.

**Albert John Kraft,** Webster Groves, Mo.; Barnes Medical College, St. Louis, 1901; aged 62; died, September 24, of cerebral hemorrhage.

**Amos Ogden Taylor,** Altoona, Pa.; Hahnemann Medical College of Philadelphia, 1883; aged 84; died, September 27, of arteriosclerosis.

**Thomas J. Herr,** New York; Eclectic Medical College of the City of New York, 1882; aged 78; died, September 1, of heart disease.

**Allen Ray Hickman,** Manhattan Beach, Calif.; Rush Medical College, Chicago, 1894; aged 70; died, September 21, of gastric ulcer.

**Peter M. Fischer,** Shakopee, Minn.; Detroit College of Medicine, 1907; aged 56; died, September 29, of coronary thrombosis.

**James H. Smith,** Franklin, Ind. (licensed in Indiana in 1901); aged 87; was killed, September 25, in an automobile accident.

**Boris Socoloff,** Chicago; Loyola University School of Medicine, Chicago, 1919; aged 50; died, September 14, of heart disease.

**George S. Calloway,** Wallins Creek, Ky. (licensed in Kentucky in 1920); aged 68; died, September 28, of diabetes mellitus.

**Harvey Preston Gillespie** ✠ Woodsfield, Ohio; Starling Medical College, Columbus, 1907; aged 68; died, September 23.

**Antoine E. Cote,** Falher, Alta., Canada; School of Medicine and Surgery of Montreal, Que., 1899; died, September 1.

**Isaac Nathan Johnson,** Martin, Tenn. (licensed in Tennessee in 1903); aged 77; died, September 2, of heart disease.

**William Edgar Hover,** Sarasota, Fla.; Medical School of Maine, Portland, 1888; aged 79; died, September 27.

**J. Beal Powers,** Macon, Ga.; Atlanta Medical College, 1884; aged 74; died, September 16, of arteriosclerosis.

# Bureau of Investigation

## THE McGLASSON COMPANY

### A "Sinus Cure" Mail-Order Fraud Debarred from the United States Mails

The McGlasson Company, of Detroit, was the trade name used by Rex R. Rader, F. W. Dennis and Ellen McGlasson Dennis, his wife, in the sale through the United States mails of an alleged "complete treatment" for sinus trouble. The company also operated an agency known as the Illinois McGlasson Company, of Chicago.

No physicians, chemists or pharmacists were connected with the McGlasson enterprises. One of the advertisements used by the McGlasson Company of Detroit read:

> "SINUS
> OR CATARRH can be curbed. As a trained nurse for years I saw my remedy give lasting relief to those who had tried every known method. It comes in 2 parts with complete food chart and attacks the cause. GUARANTEED—Write Ellen McGlasson, D. 13, The McGLASSON CO., 305 W. Fort St., Detroit, Mich."

Circulars were sent to prospective customers in which an individual, presumably Ellen McGlasson, claimed to have been "supervisor of the nose and throat department." Just where this "nose and throat department" was located was not explained. Possibly it was located at the Chicago tailor shop where the Illinois McGlasson Company received its mail.

"Supervisor" McGlasson claimed, while observing "thousands treated for sinus," to have obtained from one of the physicians "his own special formula." With this "special formula" the McGlasson Company felt equipped to rid the world of sinus infection.

The treatment furnished persons making the required remittance consisted of a three-ounce bottle of white powder labeled "Part A," a two-ounce bottle of liquid labeled "Part B," and an atomizer for spraying the latter. "Part A" consisted of a laxative powder referred to in the advertising as the "toxic poison eliminator," and "Part B" was the secret formula of an unnamed nose and throat specialist. In addition, the company threw in some "valuable suggestions regarding diet."

According to the statement made by Mr. Rader to the Post Office authorities, the "toxic poison eliminator" consisted of Rochelle salt, 1 per cent phenolphthalein, and drops of oil of cinnamon. This "wonderful regulator" was described by the exploiter as an assistant "in mildly discharging the surplus toxins from the blood stream, which is the real cause of sinus trouble." The "special formula," according to the same report, was composed of boric acid, thymol, eucalyptol, methyl salicylate, oil of thyme, sodium salicylate, alcohol and water.

The McGlasson treatment was practically identical with the Clara Ross "sinus cure" fraud reported by the Bureau of Investigation in THE JOURNAL Dec. 15, 1934, page 1873. The Clara Ross "Toxic Poison Eliminator" consisted principally of Rochelle salt, with a small quantity of phenolphthalein and oil of cinnamon, and the ingredients of the Clara Ross "Nostril Cleanser" for sinus trouble were essentially the same as the McGlasson formula. While Rader denied to Post Office inspectors any connection with the Clara Ross enterprise, operated by one Clark Ross, husband of Miss Rader, against which concern the Postmaster General issued a fraud order on Oct. 30, 1934, evidence showed that he had been engaged since 1933 under the name "Clara Ross Remedies," operating from Windsor, Ontario, in the sale of a so-called "Clara Ross Formula" for sinus trouble, the ingredients of this "Formula" being the same as those found both in the treatment sold by the fraudulent Clara Ross Company of St. Louis and in the preparations now sold by the McGlasson concerns. Changing names and addresses is an old dodge of the mail-order "medicine man" to stay in business after the use of the mails has been denied by the postal authorities.

Sinus infection, like most chronic conditions, is subject to spontaneous disappearance for varying periods of time even without medication. Those engaged in exploiting human suffering are shrewd enough to know this, and offer treatments, remedies and cures for those conditions known to have cyclic periods of quiescence.

Although the McGlasson Company submitted to the Post Office inspectors numerous testimonials endorsing the "sinus remedy," the officers were apparently not impressed and recommended at the conclusion of the hearing that a fraud order be issued against the concerns and parties involved. A 50 per cent interest in the business is owned by Mr. Rader, 25 per cent by Mr. Dennis and 25 per cent by Ellen McGlasson Dennis. Mr. Paul N. Paulsen, who operated the Chicago agency, apparently held no stock.

The Postmaster General on Oct. 13, 1936, closed the United States mails to the concerns and parties involved.

# Correspondence

## STYLE IN MEDICAL WRITING

*To the Editor:*—The communication of Dr. Fayette E. Reed in THE JOURNAL of October 31 in criticism of style in medical writing appealed to me. I must, however, make one reservation; that is the last paragraph. I read the article with glowing approval, and then came up against the ending that "if this strikes a responsive chord in your anatomy it is a sure sign that you are over 45 years of age." I feel some resentment—as if something were put over on me; it was not quite fair to get a man to commit himself and then use it against him.

All the same I would like to support his gentle criticisms. I sympathize with him in his feeling about words which suddenly become fashionable, like "meticulous" and "evaluate," and phrases such as "per se" and "sine qua non," and then are used so much that they become almost immediately shop worn. I am now fortifying myself against the probable common appearance of the word "nisi," as a result of the way it has recently been called to the universal attention of the public, including physicians, in reports of a famous divorce case. But this use of shop worn words is a minor defect of style.

A far greater defect is the displacing of good old sound words by new words of etymological doubtfulness—if not wholly without etymological standing—because they become fashionable. Good illustrations of these are "intriguing" for interesting and "healthful" for healthy.

I can find no justification, except ignorant usage, for intriguing in the sense of interesting. From the standpoint of etymology and usage until recent years, to intrigue has had the meaning to scheme or plot, with the implication that it is none too honorable. I can remember the day when an able-bodied man would knock you down if you said he was intriguing. Now he is likely to burst a button in pride if an attractive woman calls him that. In my post-45 mind it still has a suggestion of possibilities of the penitentiary; but I would not even mind that if I could get beyond the feeling that the new usage has a suggestion of pedantic ignorance.

Another usage that disturbs my serenity in a different way is that of healthful for healthy. Apparently nobody uses healthy in print nowadays, and those who want to appear elegant avoid it in conversation, except when they are caught off their guard and talk naturally. To say healthy now is like blurting out the word legs was in this country forty years ago. As Thackeray said, they do not have legs even on pianos in America. Healthy is a good Anglo-Saxon word. Healthful, if you think about it, suggests being full of health, like full of prunes. You would think the elegant would avoid it.

I see that the word healthy is derived from that Anglo-Saxon word Haelp, Middle-English Helthe. Healthy, therefore, is a pure English word going back to Anglo-Saxon, consisting of the old root and the terminal "y," which is equally an old English form common in such words as wealthy and stealthy. Such words are strong, pure English words. There are not any better in the language.

In order to take a fall out of a word of my friends the psychiatrists that has always seemed to me to be criticizable, and at the same time to show my freedom from partisanship, I will first attack a dermatologic word in the use of which our English colleagues have especially been offenders, and that is the use of the word "dermia" as an ending. The word is derma. That's what the Greeks from whom we got it used, and the only excuse for dermia that I can see is for euphony, as Mark Twain said in explaining the derivation of equine from horse.

My psychiatric antipathy is "manic" as used in the name manic depressive insanity. If it is derived from anything it is mania, with an "a" after the "i." There is no way of getting rid of that "a" without committing mayhem. How they have elided the "a" is more than I can see. It sounds to me like an Ethiopianism, first perpetrated by some one who was not too careful in scholarship and then taken up by others for euphony again. Maybe I am wrong in this; if so and some scholarly psychiatrist will make it clear that I am, I will at least feel that this note has had some use.

The moral of all this, of course, is that the dictionary is useful if one desires to speak or write good English. As Huneker says in his "Style and Rhythm in English Prose," "A good style is direct, plain and simple. The writer's keyboard is that humble camel, the dictionary." In other words, a knowledge of the meaning of words is the first essential of a good style, and that involves the incessant use of the dictionary. And while I am at it I would like to emphasize his other dictum "A good style is direct, plain and simple." Get over the notion that you are indicating culture by cultivating a Latinized style. As Quiller-Couch says in his book "On The Art of Writing," "Don't say 'He was conveyed to his place of residence in an intoxicated condition,' say 'He was carried home drunk.'" That sort of style is easier for most of us to understand.

The whole sermon was implied in a sentence of Dr. Fishbein's recently, when he said, referring to Auenbrueger, "He wrote the most scientific sentence I believe that has ever been written: 'A chest when thumped sounds.'"

WILLIAM ALLEN PUSEY, M.D., Chicago.

## MORTALITY FROM APPENDICITIS

*To the Editor:*—I was greatly pleased that in your editorial in THE JOURNAL June 20 you were kind enough to make reference to my mortality in the handling of the late suppurative appendicitis cases. This reference, however, is misleading in that it fails to make clear the fundamental principle for which contention was made. In season and out of season, for over thirty years, I have been insisting by both precept and example that the secret of the mortality in appendicitis lies in the application of the principle of deferred operation to the late cases of suppurative appendiceal peritonitis: not the early perforations but the cases seen for the first time on the third, fourth or fifth day of the acute spreading peritonitis. This, of course, is simply a faithful carrying out of the principles that Ochsner enunciated and insisted on.

At the annual session of the American Medical Association in Cleveland, Dr. Coller of Ann Arbor, Mich., read a paper on the same subject. I went to Cleveland to discuss the paper and the discussion will be found in THE JOURNAL Dec. 8, 1934, page 1759. Dr. Coller's prime contention was that after hearing my paper read before the American Surgical Association in August 1926 he had instituted the same measures at the University of Michigan, with the result that in this particular group of late suppurative peritonitis cases the mortality had been reduced from 40 per cent to about 10 per cent.

I have been contending for this principle of deferred operation in this group of cases for more than thirty years, before the surgical section of the American Medical Association in 1909, before the American Surgical Association in 1926 and at the Cleveland session. My experience has been a continuous, consecutive, unselected one that has been maintained for a period of more than thirty years and I am convinced that such an experience has passed from the realm of speculation into the realm of scientifically demonstrated truth.

The accompanying table, which brings the matter up to date, is self explanatory.

*Result of Operation*

| | No. of Cases | No. of Deaths | Mortality |
|---|---|---|---|
| 1. Recurrent appendicitis | 1,572 | 0 | 0 |
| 2. Acute appendicitis | 989 | 1 | 0.10% |
| 3. Acute, gangrenous, ruptured appendix, localized abscess | 545 | 3 | 0.55% |
| 4. Acute, gangrenous, ruptured appendix, with diffuse peritonitis: immediate operation | 94 | 10 | 10.64% |
| 5. Acute, gangrenous, ruptured appendix, with diffuse peritonitis: deferred operation | 139 | 2 | 1.43% |
| 6. Patients moribund; drainage; appendix not removed | 12 | 3 | 25.00% |
| 7. Appendix removed in course of other operations | 444 | 0 | 0 |
| Totals | 3,795 | 19 | 00.50% |

The principle for which I am contending is included in groups 4 and 5. In group 4 there were ninety-seven cases of acute, gangrenous, ruptured appendixes, with diffuse peritonitis, seen by me for the first time during the third, fourth or fifth day of the attack, with immediate operation. In this group there were ninety-four cases with ten deaths, or a mortality of 10.64 per cent. Over against group 4, in group 5 there were 139 cases of acute, gangrenous, ruptured appendixes, with diffuse peritonitis, seen by me for the first time on the third, fourth or fifth day of the attack, with deferred operation, Ochsner plan, with two deaths, or a mortality of 1.43 per cent.

LE GRAND GUERRY, M.D., Columbia, S. C.

## WATER FILTRATION VERSUS CHLORINATION

*To the Editor:*—The editorial in THE JOURNAL, October 31, on water filtration versus chlorination fails to take cognizance of certain practical questions. The blunt assertion is made that, "if a bacteriologically safe drinking water is desired, it may be obtained by chlorination." Actually this statement might be approximately true if one were to put in a hundred or a thousand times as much chlorine as could be absorbed by the organic matter during periods of low pollution. This would be necessary, because the degree of pollution of large sources changes suddenly and enormously, as the reports of the Chicago Board of Health show. No one would drink really safe chlorinated water. In practice it is impossible to make large water supplies safe by chlorination alone.

The editorial does not consider the fact that filtration does not supplant chlorination but only supplements it. The initial chlorination can be carried on efficiently and completely, because excessive amounts can be removed before the water is filtered. Chlorination alone might be adequate protection, except against amebas and other organisms not injured by practicable quantities of chlorine, if a storage system were available. But storage tanks for holding water for an hour or two would cost almost as much as filters. Then why not have the additional protection and the superior quality of water that filtration will provide?

Of course, no mechanical device is proof against human error in its control, but at least filtration of the water supply provides an additional tool for the protection of the public health.

M. B. VISSCHER, M.D.
A. J. CARLSON, PH.D.
A. C. IVY, M.D., Chicago.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## HORMONE TREATMENT FOR HERMAPHRODITISM—VIRILISM—HYPOGENITALISM—UNDESCENDED TESTIS

*To the Editor:*—I have a group of cases in which I find it difficult to decide whether some form of hormone treatment is desirable, and I come to you for advice: 1. In cases of female pseudohermaphroditism, presenting large penoclitoris, a vagina opening into the urethra, ovaries infantile and sometimes cystic, marked adrenal cortical hyperplasia, what treatment should be instituted? 2. In cases of virilism in females after puberty, when cystic ovaries are found and are surgically treated but not completely removed, what treatment should be used? 3. In hypogenitalism in males, generally associated with feminine secondary sex character, beardless face, mammary hyperplasia, penis very small, testicles generally small, prostates undeveloped, what treatment should be used? 4. In undescended testes, what is the best preparation to use in order to hasten the descent? Any assistance you may give me in these perplexing problems will be greatly appreciated.

HUGH H. YOUNG, M.D., Baltimore.

ANSWER.—1. Patients of the first type mentioned constitute one of the most pathetic groups seen by physicians. Their disorder is due to a developmental anomaly which is so fundamental as to make man's weak efforts to correct it seem quite futile. Many require expert surgical restoration, which seldom is complete and often is unsatisfactory. Medical treatment with various glandular extracts has not been promising. The suggestion is made that such cases should be admitted to institutions equipped to study the content of estrogens and androgens in blood and urine. If after a careful physical examination and such studies have been completed the patient is found to be predominantly male or female, appropriate surgical help should be given followed by a careful trial of treatment with pituitary or sex gland hormones. It should be added that it is doubtful whether even this program would help many of these unfortunates, but it would afford the opportunity for some badly needed study.

2. Patients of the second group are more frequently seen. Some present such clear-cut syndromes as to enable the physician to make a diagnosis of (*a*) pituitary basophilism (Cushing's syndrome), (*b*) tumors or hyperplasia of the adrenal cortex, or (*c*) arrhenoblastoma of the ovaries. In the cases mentioned it is assumed that the last possibility has been eliminated. If in addition to the "virilism" mentioned in the question the patient has amenorrhea, purplish striae of the skin, osteoporosis of the bones, hirsutism, plethoric appearance of the face, atypical fat deposition, hypertension, elevated basal metabolic rate, glycosuria and the other symptoms described by Cushing and others, then one of the first two possibilities must be considered. If, on the other hand, the author means by "virilism" the less definite but quite distressing symptoms of hirsutism and menstrual irregularity, then we know of no diagnosis and no treatment. Such patients may represent a physiologic variant rather than a pathologic abnormality.

3. "Male hypogenitalism" as referred to is also a most indefinite condition. For many years this unfortunate group has received every available glandular product administered by mouth or by needle. At present any patient who will hold still long enough is being "shot" with something. No convincing report of success has been published. The treatment to date has been enthusiastic but ineffectual.

4. The answer to the last question regarding "the best preparation to use in order to hasten the descent of the testes" must be evasive until such time as the Council on Pharmacy and Chemistry of the American Medical Association reviews and evaluates such products. In general it may be said that the substances most frequently used are preparations of the gonadotropic principle obtained from the urine of pregnant women, the placenta or the serum of pregnant mares. Many overly enthusiastic reports of the efficacy of such treatment have appeared. At last, some conservative reports are putting in an appearance. An observer recently reported good results in 20 per cent of the cases studied. If the author of the question wishes to try such preparations he should use the products of an established pharmaceutical or biological laboratory and avoid the questionable products of unscientific commercial institutions.

It is appreciated that the answers to the questions are not definite. In defense, it may be stated that neither are the conditions inquired about definite. Treatment can never be definite for an indefinite condition. Physicians must acknowledge the inadequacy of their knowledge about such conditions and attempt to obtain this knowledge from careful study rather than from careless treatment.

## GIANT URTICARIA FROM COLD

*To the Editor:*—A woman, aged 25, for the first time last winter developed giant urticaria when exposed to cold weather. The eruption occurred several times and lasted about two hours each time. Also, there occurs a transitory swelling of the lips whenever she eats ice cream or ices. Holding a small piece of ice in her hands brought about a brief swelling of the fingers. She has never had any previous allergic manifestation. The family history reveals a suggestive asthmatic condition in her father; a sister occasionally "breaks out into hives" Will you kindly offer suggestions as to treatment? I would also appreciate any references in the literature to similar conditions. Kindly omit name.

M.D., New York.

ANSWER.—The symptoms in this case apparently come from exposure to cold, and contact with the ice caused some swelling of the fingers. These facts suggest that the urticaria is due to hypersensitivity to cold; in other words, that this is a case of physical allergy due to cold.

In 1923 Duke reported urticaria due to light and followed it up with numerous articles on allergic conditions caused by various physical factors, such as light, heat, cold and pressure. A number of other men have contributed articles on the subject. In a recent article Swineford discusses physical allergy at length and many references are given.

There would seem to be little doubt that there is such a thing as an allergic reaction caused, or at least initiated by, such physical factors as cold, heat, light and pressure. Many workers in the field, however, contend that these factors are not the prime causes of trouble but are associated with other sensitivity, such as foods, epidermals or pollens, and that the physical factors only act as contributory causes.

It would be well to read the articles of Duke and the others mentioned, in which suggestions as to the treatment are well brought out:

Duke, W. W.: Urticaria Caused by Light, THE JOURNAL, June 23, 1923, p. 1835.
Urticaria Caused Specifically by the Action of Physical Agents, *ibid.*, July 5, 1924, p. 3.
Physical Allergy: Preliminary Report, *ibid.*, March 7, 1925, p. 736.
Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy, St. Louis, C. V. Mosby Company, 1925.
Physical Allergy as Cause of Dermatoses, *Arch. Dermat. & Syph.* **13:** 176 (Feb.) 1926.
Heat and Effort Sensitiveness, Cold Sensitiveness, *Arch. Int. Med.* **45:** 206 (Feb.) 1930.
Clinical Manifestations of Heat and Effort Sensitiveness and Cold Sensitiveness, J. Allergy **3:** 257 (March) 1932.
Treatment of Physical Allergy, *ibid.* **3:** 408 (May) 1932.
The Dawn of a New Specialty in Medicine, *Illinois M. J.* **64:** 174 (Aug.) 1933.
Bray, G. W.: A Case of Physical Allergy: A Localized and Generalized Allergic Type of Reaction to Cold, *J. Allergy* **3:** 367 (May) 1932.
Alexander, H. L.: Physical Allergy: Report of a Case with Successful Treatment, *J. Allergy* **2:** 164 (March) 1931.
Horton, B. T., and Brown, G. E.: Histamine-like Reactions in Allergy Due to Cold: Report of Six Cases, *Am. J. M. Sc.* **178:** 191 (Aug.) 1929.
Swineford, Oscar, Jr.: Physical Allergy: Its Rôle as Manifested in the Routine Study of 325 Consecutive Allergic Cases, *J. Allergy* **6:** 175 (Jan.) 1935.

## IONIZATION TREATMENT IN HAY FEVER

*To the Editor:*—There is a doctor located here who believes that the ideal treatment for hay fever is "ionization." This consists of some type of nasal treatment which he accomplishes at two sittings. He believes that he produces a goodly number of cures by this method. In view of the fact that he has some following in this community, I should like to know what the treatments consist of, and your opinion.

M.D., Illinois.

ANSWER.—While nasal ionization has come to the fore during the past few years as a suitable treatment for hay fever and allergic rhinitis, its status is still unsettled. Ionization has been employed for more than a decade by certain rhinologists (Hollender, A. R., and Cottle, M. H.: Recent Advances in the Treatment of Nasal Accessory Sinus Diseases, *Eye, Ear, Nose & Throat Monthly* **5**:575, 1926) chiefly as a therapeutic aid in simple chronic rhinitis. Its use in nasal allergy is more recent, but sufficient experience has been had with the method to draw some conclusions. Earlier workers have adhered to the employment of a weak (2 per cent) zinc sulfate solution as the electrolyte. H. L. Warwick (Treatment of Hay Fever and Its Allied Conditions by Ionization, *Laryngoscope* **44**:173 [March]

1934), A. M. Alden (A Year's Work with Ionization in the Treatment of Hay Fever, *ibid.* **44**:741 [Sept.] 1934) and others prefer an electrolyte of three metallic chemicals, zinc, cadmium and tin. It is doubtful whether the latter has any advantage for the electrolytic purpose.

Experiences of Warwick, Alden and several other rhinologists have been reported as favorable in the treatment of nasal allergy whether of a seasonal or a perennial character. On the other hand, the reports of a different group are encouraging for the perennial types of nasal allergy and discouraging for the seasonal condition. There seems to be little doubt concerning the value of zinc ionization as a palliative in nonseasonal allergic rhinitis, but its curative worth remains to be more thoroughly established. The reports of L. B. Bernheimer (Zinc Ionization in Nasal Allergy, THE JOURNAL, June 6, 1936, p. 1980), M. A. Ramirez (Disappointing Results from the Ionization Treatment of Hay Fever, *ibid.*, Jan. 25, 1936, p. 281), A. R. Hollender and Meyer Gorin (Influence of Ionization on Vasomotor Rhinitis, *Illinois M. J.* **69**:493 [Dec.] 1935) and others convey this impression.

It should be added further that while from a clinical standpoint no harmful effects from nasal ionization have been observed, the possibilities of local tissue injury, at least for a brief period, must be entertained. L. W. Dean (The Fundamentals of Allergic Rhinitis, with Particular Reference to Ionization, *Ann. Otol., Rhin. & Laryng.* **45**:236 [June] 1936) believes that this period is about two years.

In summarizing it can be said that:

1. Zinc ionization is a nonspecific local procedure suitable for nonseasonal types of allergic rhinitis, especially after immunization and other methods have failed to bring about a relief of symptoms.

2. It should not be heralded as a cure in spite of permanent relief of symptoms in some cases.

3. The procedure merits application only after a careful, comprehensive study of each individual case to establish a rational indication.

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### STERILIZATION AND EPILEPSY

*To the Editor:*—Will you kindly let me know what results, if any, have been reported in cases of epilepsy apparently associated with the menstrual or ovulation phases by sterilization or by x-ray sterilization. The case I have in mind is that of a girl, aged 20, white and single. Her epileptic seizures began apparently with the onset of menstruation, nine years ago. At onset, these seizures appeared once in two years then occurred once a year. Of late these seizures have been appearing at an average rate of once a month about the menstrual and ovulation periods. Her physical examination is negative in all respects, the only significant factor being that there is present a distinct allergic condition. As an infant she had eczema and from time to time has had attacks of urticaria. For the past nine months following a spinal puncture these attacks have become more frequent. This case has been seen in consultation with a prominent neurologist in New York City and after close observation for six months, during which treatment was given on an endocrine basis, he advises temporary sterilization by x-ray. I would like to have your opinion as to the efficacy of such treatment and also any bibliography you may have on the subject. Also, if you have one, a list of articles you may refer me to. Kindly do not publish name.

M.D., New York.

ANSWER.—The idea of an association between epileptic seizures and menstruation is an old one. The Germans have even classified what they called "ovariellen epilepsie." The only relationship that can be established, however, is the fact that there is an increased irritability at the time of menstruation. Direct relationship between the endocrine glands and epilepsy is seldom, if ever, demonstrated. F. Winter (*München. med. Wchnschr.* **70**:1172 [Sept. 14] 1923) reported that he had stopped seizures for three and one-half months after x-ray exposure of the ovaries. Such results are reported, and apparently occur, after almost any treatment that influences the metabolism to any great extent. The two most recent references on the influence of endocrine organs on the genesis of epilepsy are by F. Braun (*Schweiz. Arch. f. Neurol. et de Psychiat.* **36**:63, 1935) and J. J. H. M. Klessèns (*Nederl. tijdschr. v. geneesk.* **80**:1119 [March 14] 1936).

It is extremely doubtful that the patient in question would derive any particular benefit from x-ray treatment. If the purpose is to sterilize her, this can be done in a much better way and without destroying the organs. The patient would probably respond much better to dietetic control, such as the ketogenic diet, fluid restriction and so forth, and to phenobarbital.

There has never been any definite relationship demonstrated between epilepsy and allergy. An epileptic patient may be allergic, but there is no definite sequel.

### IMMUNIZATION AGAINST WHOOPING COUGH

*To the Editor:*—A boy, aged 10 years, is well nourished and normal in all respects except for a marked sensitivity to numerous foods, plants and animal matter since babyhood. The skin tests were performed at Ann Arbor and were complete. Would immunization for whooping cough cause a reaction? At this age is such immunization necessary?

DWIGHT F. SCOTT, M.D., Sault Ste. Marie, Mich.

ANSWER.—No data are available on prophylactic whooping cough vaccination of older children. Most children of 10 have already had the disease. The best age for the injection of B. pertussis vaccine (immunizing) is the second half year of life. As the allergic child usually is predisposed to contract the more severe and protracted form of pertussis, with subsequent attacks of bronchitis and asthma as a sequel, it seems advisable to attempt immunization. Vaccine authorized by Northwestern University Medical School would not be as liable to cause severe anaphylactic or other untoward reactions as other preparations, since it contains no trace of animal protein. It is prepared from bacilli grown on human blood. The patient will probably require a total dosage of 10 or 12 cc. It may be divided into four weekly injections as follows: 1 cc. hypodermically (just under the skin); if no marked reaction occurs, 3 cc. should be given a week later; a week thereafter, from 3 to 4 cc. should be injected, and a final 3 to 4 cc. should be given a week later. A transient local erythema at the site of injection seems to be desirable; it usually disappears within a few days. Injections should not be given into the site of previous injections or into vaccination scars. The syringe and needles should be sterilized by heat; fingers should not touch the sterile plunger when vaccine is withdrawn and injected; the vial cap and the site of injection are sterilized by briskly rubbing with an alcohol sponge. Heat or wet dressings should not be applied to a local reaction, as such measures induce abscess formation.

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### NARCOLEPSY

*To the Editor:*—I wish to inquire about the probable etiologic factors and the type of treatment in a man, aged 26, afflicted with narcolepsy. The family history and past history are irrelevant. It seems that about four years ago he began to have attacks of flaccidity of the entire body occasionally during periods of excitement, such as getting a fish on a line and starting to draw it in. To start off with an exciting conversation, he would be unable to say anything. Seeing an exciting motion picture would cause him suddenly to become limp or have his knees crossed and for a time being unable to uncross them. These attacks last several seconds. There is no loss of consciousness. Concomitant with the onset of this phase of his illness he has periods in which he will be writing or aggregated with other people talking in which he will fall asleep. He occasionally goes to sleep while driving his car, which has caused a number of automobile accidents. He is of the obese hypopituitary type, is 5 feet 9 inches (175 cm.) tall and weighs 235 pounds (107 Kg.). Examination of the different systems gives negative results. Laboratory tests are negative, including Wassermann tests of the blood and spinal fluid. X-ray examination of the sella turcica shows diminished size, without evidence of tumor. His basal metabolic rate is — 10. His eyes are normal except that he can discern light and dark only in his left eye. Please omit name.

M.D., Texas.

ANSWER.—The description given is characteristic of the narcolepsy of Gélineau, including attacks of cataplexy as well as of sleep. Little is known of the etiology in many cases, though some appear to be a sequela of epidemic encephalitis. Therapy in these cases is often unsatisfactory. Relief has been obtained through the administration of ephedrine and more recently of benzedrine sulfate. The latter is usually administered in doses of from 10 to 20 mg. on arising in the morning and if necessary an additional 10 mg. at about 11 a. m.; the drug should not be given after noon, as it is liable to interfere with sleep at night.

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### DIABETES AND CORONARY THROMBOSIS

*To the Editor:*—I have a patient aged 52 who has diabetes and is convalescing from an attack of coronary thrombosis. Does a high fat diabetic diet predispose such a patient to thrombosis, and should the patient be kept underweight? If so, approximately how much? Please omit name.

M.D., Ohio.

ANSWER.—The question as to whether an excess of fat in the diet leads to arteriosclerosis has been much discussed. The imbibition theory of arteriosclerosis fits the diabetic situation. This theory suggests that the fat in the form of cholesterol esters is deposited in the intima of the larger arteries, that the more fat in the blood the more readily it might be deposited. Later on calcium salts may be linked with the cholesterol in the lower layers of the intima and calcified arteries result. Aschoff, of course, has amplified this theory. Joslin believes that one of the important causes of premature development of arteriosclerosis in diabetes, apart from the influence of advanc-

ing age, is the excess of fat in the diet and in the blood, and obesity. Other men have not felt that a high fat diet predisposes to arteriosclerosis. One must recognize the work of recent years, from a prognostic point of view, in studying the level of cholesterol of the blood in diabetes.

To the question regarding the patient at hand, the patient should be reduced to about 10 per cent below normal both because of the heart and the diabetes. It is impossible to say that a high fat diet predisposes the patient to thrombosis, but such a patient should not be placed on a high fat diet.

### INTERCOURSE DURING POSTGONORRHEAL PROSTATITIS

*To the Editor:*—In some instances of postgonorrheal prostatitis, pus can be expressed from the prostate by massage for months or even years after the acute stage. For how long a period must one interdict sexual intercourse in such a case? Please omit name. M.D., New York.

ANSWER.—As long as the strippings from the prostate and vesicles show pus, it is well to continue massage until they are free from pus. Whether or not sexual intercourse is permitted in this kind of a case depends entirely on the bacteriology of the fluid. If recent examinations for gonococci are negative and the smears and cultures are negative, there is no reason why the patient may not indulge. The fact that the patient has pus does not prevent sexual intercourse. When one gives permission, one must be sure that there are no organisms in the strippings.

### BRACHIAL PLEXUS INJURY

*To the Editor:*—Two days ago I was called to see a patient who had injured his right shoulder twelve hours previously. Examination revealed a subglenoid dislocation of the right humerus, the right hand was moderately cyanotic and colder than the left, and the radial pulse was weaker on the right side. He complained of a numb feeling, and there was a total loss of mobility of his fingers, wrist and elbow. X-ray examination was negative for fracture. Reduction was effected without difficulty under ether anesthesia. Follow up roentgenograms were negative. A sling was substituted for the Velpeau bandage to allow exercise of the fingers, wrist and elbow. After two days the only motion he has on the right side is slight flexion of his fingers and wrist. Extension, rotation and motion at the elbow are nil. Sensation of touch and of pain are present. What is the prognosis? What physical therapy should be employed? Please omit name. M.D., Wisconsin.

ANSWER.—It is difficult to advise regarding the prognosis and therapy here because injury to adjacent nerves is a possibility. The symptoms described fit in rather well with the upper arm type of brachial plexus palsy; the prognosis of this condition varies so that no general rule can be laid down, but it is generally quite good, although sometimes surgical treatment becomes necessary. Massage, passive and active exercises (when they become possible) may be recommended; also judicious use of faradic and galvanic currents, depending on which current the muscles still react to. In the meantime the possibility of brachial plexus injury should be considered. If this is thought to be present, after a reasonable length of time, if no improvement occurs, surgical intervention may be necessary.

### NEURITIS OR MYELITIS AFTER TETANUS ANTITOXIN

*To the Editor:*—I am writing to you asking for information and statistics on the occurrence of toxic neuritis or myelitis following the injection of tetanus antitoxin. About two months ago a college student was given 1,500 units of Mulford's serum subcutaneously in the soft tissue of the back between the scapulae. On the second day he had a mild reaction, which quickly disappeared. This was followed on the fifth day by the usual systemic reaction of fever, chills, malaise and urticaria. The following day he noticed pain in the right deltoid associated with difficulty in raising the arm at the shoulder, and on the seventh day the shoulder was completely paralyzed. The condition is still present. The arm has been placed in an airplane splint. Just how frequent an occurrence is this? What is the prognosis? Would exercise at the time of the systemic reaction have anything to do with this occurrence? Please omit name. M.D., California.

ANSWER.—Toxic neuritis or myelitis following the injection of tetanus antitoxin is rare. Wilson and Hadden (THE JOURNAL, Jan 9, 1932, p. 123) describe three cases and refer to Lhermitte and Haguenau, who collected reports of seventy-seven such cases from the literature up to 1931. Diphtheria antitoxin, diphtheria toxin-antitoxin, scarlet fever antitoxin and antistreptococcus serums may produce similar complications. The upper roots of the brachial plexus, especially the fifth and sixth cervical, are most frequently involved. The muscles commonly affected are the serratus anterior, deltoid, trapezius, supraspinatus and infraspinatus, and these may be partially or completely paralyzed. The neuritis is thought to be due to edema of the cord or nerve trunk and perineural tissue developing during the course of a serum reaction. The prognosis is good. Function is completely restored after a period of from three to eight months. Exercise at the time of the systemic reaction is unrelated to this complication.

### BLUE COLORATION OF DRINKING WATER

*To the Editor:*—A local oil refining company has a small colony located near the plant. It has its own water supply. Well water is distributed by motor pump through copper pipes (Revere). The water is strongly alkaline. Bacteriologically it is normal. The water turns green on standing after being drawn. If drunk first thing in the morning without draining for from three to five minutes it produces nausea almost at once with some slight abdominal discomfort and perhaps two or three watery evacuations. There are about thirty people in this colony. It would seem that all are affected to some degree with the gastro-intestinal symptoms. About six of them also manifest a mild dermatitis, the chief symptom being itching. Copper pipe was put in two years ago. Prior to that time, ordinary steel pipe was used. At that time the water never turned green and there was no gastro-intestinal difficulty. Could the copper pipe be the cause? How could this water be tested? What is the status of copper piping in the present plumbing systems? I would appreciate any suggestion that you may make. M.D., Kentucky.

ANSWER.—From the information submitted it is probable that the blue green discoloration of the water distributed through the copper pipe is due to the action of the "strongly alkaline water" on this metal. Waters with a $p_H$ of 9.5 or higher are known to be "active" with copper. The cupric product that results would depend on the dissolved salts in the well water.

This difficulty could be overcome by treating the water to reduce its hydrogen ion content to a point at which it would not be active on copper. This could be accomplished by the use of an acid or carbon dioxide. To determine the corrective measure, a chemical analysis of the water should be made.

Returning to the use of iron or steel pipe might be advisable, but there may be other good reasons for not doing so. It would be prudent to secure advice from a competent water chemist with regard to this problem, from the standpoint both of the health of the consumers and of maintenance of the water system.

### SIALORRHEA

*To the Editor:*—I have a patient suffering from paralysis agitans, the most troublesome symptom being a free flow of saliva, which causes considerable dribbling and makes the patient very uncomfortable. Could you make some suggestion as to the abatement of this condition?

C. E. SAVAGE, M.D., Delphos, Ohio.

ANSWER.—The sialorrhea described is most likely due to a disturbance in tone of those structures involved in apprehension, placement and swallowing of substances, and not to increased secretion of saliva. Consequently scopolamine or stramonium may be of some value. These substances also diminish the amount of salivary secretion. If these do not produce the desired result, atropine may be used.

### BEHAVIOR DISTURBANCE AND ENDOCRINE DISORDER

*To the Editor:*—Was I scientifically correct in stating that a wilful, sullen and overactive problem child, whose facial features are deformed with large teeth widely spaced, is probably the victim of a mendelian heredity, accompanied by a pituitary or glandular disturbance? Please omit name. M.D., New York.

ANSWER.—No definite answer can be given without more information about the patient. The behavior disturbance may be due to a variety of things, such as an environmental difficulty, or to one of the various forms of encephalitis which may follow infection, trauma and the like. The habit of attributing various conditions to endocrine disturbances, unless there is specific evidence of them, is to be deprecated.

### VISSCHER-BOWMAN TEST

*To the Editor:*—In THE JOURNAL, October 24, you state on page 1409 in reply to a question concerning the Visscher-Bowman test for pregnancy that "the original article describing it appeared in the *Deutsche medizinische Wochenschrift* **60**: 1823 (Nov.) 1934." I wish to point out that this statement is incorrect and unfair to Drs. Visscher and Bowman. The original article of these workers appeared in the *Proceedings of the Society for Experimental Biology and Medicine* **31**: 460 (Jan.) 1934, in which the results with 317 cases are reported. The article you give as the original is by J. G. Menken.

M. J. SCHMULOVITZ, Baltimore.

# Medical Examinations and Licensure

## COMING EXAMINATIONS

### STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Juneau.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Jan. 5. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Feb. 13. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

IDAHO: Boise, April 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, Jan. 26-28. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA: *Basic Science.* Des Moines, Jan. 12. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

KANSAS: Topeka, Dec. 8-9. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

MARYLAND: *Regular.* Baltimore, Dec. 8. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Jan. 19-21. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, Dec. 9. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: Portland, Jan. 5-7. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

PENNSYLVANIA: Philadelphia, January. Sec., Board of Medical Education and Licensure, Mr. James A. Newpher, Education Bldg., Harrisburg.

PUERTO RICO: San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

RHODE ISLAND: Providence, Jan. 7-8. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. B. A. Dyar, Pierre.

TENNESSEE: Memphis, Dec. 16-17. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 9-13. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WEST VIRGINIA: Charleston, March 1. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 12-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, Feb. 1. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

### SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written examination for Group B applicants* will be held in various cities throughout the country, April 17. *Oral examinations for Group A and B applicants* will be given in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written* examination will be held simultaneously in different centers of the United States and Canada in December. *Practical* or *clinical* examination will be given in St. Louis in April. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Des Moines.

AMERICAN BOARD OF OPHTHALMOLOGY: Los Angeles, Jan. 23. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Cleveland, Jan. 9. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 29-30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester.

## Connecticut July Examinations

Dr. Thomas P. Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held in Hartford, July 14-15, 1936. The examination covered 9 subjects and included 70 questions. An average of 75 per cent was required to pass. Forty-two candidates were examined, 24 of whom passed and 18 failed. The following schools were represented:

| PASSED<br>School | Year Grad. | Per Cent |
|---|---|---|
| Yale University School of Medicine | (1936) | 83.5* |
| Georgetown University School of Medicine | (1935) | 75.3* |
| University of Maryland School of Medicine and College of Physicians and Surgeons | (1934) 79.4, (1935) | 79.7 |
| Boston University School of Medicine | (1934) | 75 |
| Harvard University Medical School | (1934) 83.5, (1935) | 77.5 |
| Tufts College Med. School | (1932) 76.8, (1934) 75.5, 83, (1936) 75,* | 75.3 |
| Columbia University College of Physicians and Surgeons | (1935) 75, 75, (1936) 76.6, 79.7, 80.5,* | 81.8* |
| Cornell University Medical College | (1932) | 75* |
| Long Island College of Medicine | (1936) 77.6, | 79.4 |
| University of Toronto Faculty of Medicine | (1932) | 78.3 |
| University of Glasgow Medical Faculty | (1935) | 81.1 |
| Osteopath† | | 81 |

| FAILED<br>School | Year Grad. | Per Cent |
|---|---|---|
| George Washington University School of Medicine | (1935) 69.7, | 70.6 |
| Georgetown University School of Medicine | (1934) 69.7, (1935) | 72.7 |
| University of Illinois College of Medicine | (1936) | 66.3 |
| Tufts College Medical School | (1934) 72.2, (1935) 68.6, 71, | 71.2 |
| Columbia University College of Physicians and Surgeons | (1935) | 71.2 |
| Long Island College of Medicine | (1935) | 66.2 |
| Jefferson Medical College of Philadelphia | (1934) | 70.1 |
| University of Vermont College of Medicine | (1935) | 71.1 |
| Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia | (1934)‡ | 68 |
| Regia Università di Napoli Facoltà di Medicina e Chirurgia | (1935)‡ | 68.9 |
| Osteopaths, 3† | | § |

Twenty-eight physicians were successful in the oral examination for endorsement applicants given in Hartford, July 28. The following schools were represented:

| PASSED<br>School | Year Grad. | Endorsement of |
|---|---|---|
| University of Colorado School of Medicine | (1933) | N. B. M. Ex. |
| Yale University School of Medicine | (1933, 2), (1934), (1935, 2), (1935)* | N. B. M. Ex. |
| George Washington University School of Medicine | (1927)* | New York |
| Georgetown University School of Medicine | (1935) | N. B. M. Ex. |
| University of Louisville School of Medicine | (1933) | Kentucky |
| Johns Hopkins University School of Medicine | (1929)* | Maryland, (1931)* N. B. M. Ex. |
| University of Maryland School of Medicine and College of Physicians and Surgeons | (1932) | N. B. M. Ex. |
| Boston University School of Medicine | (1933), (1934) | N. B. M. Ex. |
| Harvard University Medical School | (1924) | Penna., (1928)* Massachusetts, (1934) N. B. M. Ex. |
| Tufts College Medical School | (1935) | N. B. M. Ex. |
| St. Louis University School of Medicine | (1927)* | Ohio |
| Syracuse University College of Medicine | (1933) | N. B. M. Ex. |
| University of Rochester School of Medicine | (1934) | N. B. M. Ex. |
| Jefferson Medical College of Philadelphia | (1933) | New York |
| University of Pennsylvania School of Medicine | (1933) | Penna. |
| Medical College of Virginia | (1931) | Virginia |
| University of Virginia Department of Medicine | (1919)* | Virginia |
| Queen's University Faculty of Medicine | (1921)* | New York |
| Ludwig-Maximilians-Universität Medizinische Fakultät, München | (1911)** | |

* License has not been issued.
† Examined in surgery.
‡ Verification of graduation in process.
§ Average grades not reported.
** Permitted to appear for oral rather than written examination because of his many contributions to medicine.

## South Carolina June Report

Dr. J. Earle Boozer, secretary, State Board of Medical Examiners of South Carolina, reports the written examination held in Columbia, June 23-25, 1936. The examination covered 17 subjects and included 70 questions. An average of 75 per cent was required to pass. Thirty candidates were examined, all of whom passed. Eight physicians were licensed by reciprocity. The following schools were represented:

| PASSED<br>School | Year Grad. | Per Cent |
|---|---|---|
| University of Pennsylvania School of Medicine | (1935) | 89 |
| Medical College of the State of South Carolina | (1934) (1935) 83, (1936) 78, 78, 78, 78, 79, 79, 81, 81, 82, 82, 83, 83, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 86, 86, 86, 88, 89 | 84, |

| LICENSED BY RECIPROCITY<br>School | Year Grad. | Reciprocity with |
|---|---|---|
| Emory University School of Medicine | (1933), (1935, 2) | Georgia |
| University of Georgia Medical Department | (1927) | Georgia |
| Indiana Medical College | (1906) | N. Carolina |
| University of the South Medical Department | (1900) | Georgia |
| Medical College of Virginia | (1933) | Virginia |
| University of Virginia Department of Medicine | (1926) | Virginia |

# Book Notices

**Food, Fitness and Figure.** By Jacob Buckstein, M.D., Consulting Physician in Diseases of the Stomach and Intestines to United States Veterans' Bureau. Introduction by Harlow Brooks, Visiting Physician Bellevue Hospital. Cloth. Price, $2. Pp. 252. New York: Emerson Books, Inc., 1936.

This volume presents in simple, nontechnical language the essential facts of nutrition in a form suited to the needs and background of the intelligent layman. From a perusal of the text one gathers that the chief objective of the author is to develop in the minds of the general public a saner attitude toward reduction, food fads, and other practical dietary problems. Such an attitude he apparently correctly believes can be developed only through an understanding of the fundamental principles of nutrition. In any case, the presentation is in accord with this plan.

Two introductory chapters trace the development of the modern diet, the art of cooking, and food preservation. Then follows a straightforward statement, running through six chapters, of the functions in the body of each of the chief dietary constituents—energy, protein, fat, carbohydrate, minerals and the several vitamins—and in another five chapters a discussion of the most important foodstuffs and beverages, including their origin and history, and their contributions and limitations in the human dietary. With the foundation laid, the remaining half of the book is devoted to the application of the knowledge thus set forth to practical dietary problems: the requirements of a normal diet and how the various foodstuffs may be used to cover them, and analysis of common dietary fads, including vegetarianism and fasting, and a discussion of the all important problem of weight control, particularly weight reduction. The last named topic receives the major emphasis. This discussion points out the dangers of short cuts to reduction through the use of products containing phenolphthalein or thyroid and the more recently employed dinitrophenol, and also shows the limitations of the many popular reduction diets such as the Hollywood eighteen day diet. It outlines the basic principles of reduction and unlike most presentations of this subject it emphasizes the foods that must be included in the diet to insure that the needs of the body for protein, minerals and vitamins are safely covered. It then works out a practical reduction plan and concludes with menus for fourteen days to provide approximately 1,500 calories, and a table of 100 calory portions to enable the reader to make other intelligent dietary adjustments.

The description thus far might apply to any one of the numerous recent elementary textbooks written for the same purpose, but it differs from the general run of such books in several important respects. It is first of all accurate in all details, both in the scientific facts presented and in their implications and in the practical dietary directions. It is moreover consistent in tone and level throughout, never for a moment going over the heads of the lay audience for whom it is intended. It is well written, well balanced and sane, one of the few books of this type that one would be willing to put into the hands of the usual layman without editing.

**Schlacke und Vitamine: Die Schlackenkost als Behandlungsweg bei Krankheitszuständen.** Von Professor Dr. Hugo Salomon. Paper. Price, 12 marks. Pp. 263, with one illustration. Leipzig & Vienna: Franz Deuticke, 1936.

This is a monograph in German on the rôle of a specific diet composed of coarse whole grain bread and an abundance of fruits and vegetables. The purpose is to provide a great deal of roughage to promote peristalsis, to eliminate constipation, and to provide an abundance of energy, vitamins and mineral elements. It is a meatless, vegetarian and fruitarian diet which, according to the author's experience, is helpful in stomach and intestinal ulcers, fevers, typhoid, tuberculosis, heart diseases, arteriosclerosis and hypertension, joint diseases, skin diseases, pancreatic disturbances, kidney disturbances, migraine and nervous conditions, and all diseases associated with constipation. The word "schlacke" means slag, or offal. Since Dr. Salomon's diet is abundant in celluloses, he names his diet "a slag diet." What he really means, apparently, is a diet abundant in roughage. A "schlacken" diet, the author holds, can be made salt free or very poor in salt when the vegetables are cooked without salt and when all the wheat bread is made salt free. Because of its low protein content, the author claims that it is beneficial in kidney diseases and diseases associated with hypertension. The author's clinical work with this diet in the various diseases, however, is rather limited and needs further trial before definite conclusions can be made concerning its advantages in various diseases.

**Syphilis Sive Morbus Humanus: A Rationalization of Yaws So-Called for Scientists and Laymen Interested in the Damage to Man from Venereal Diseases.** By Charles S. Butler, A.B., M.D., LL.D., Rear Admiral (MC) U. S. Navy. Cloth. Price, $3. Pp. 137, with 19 illustrations. Lancaster, Pa.: Science Printing Co., 1936.

The author sets himself firmly to a triple task: (1) to disseminate knowledge to the general populace concerning the ravages of venereal diseases; (2) to expose the fallacy of the hypothesis of the American origin of syphilis; (3) to show the unity of the so-called yaws and syphilis. In the first he has failed, in the second he is ineffectual and in the third he has succeeded admirably. The broad minded scientist and the interested physician will find much of interest in the volume, for it is only these two who will understand it. However much one may be in sympathy with the contention of the author that syphilis did not originate in the New World, his array of historical evidence in this direction is far from convincing. The description of the venereal diseases by precolumbian physicians might apply to a half dozen diseases that could be easily confused with syphilis. Furthermore, the most authoritative of the postcolumbian writers, Francisco Lopez de Villalobos and Juan de Vigo, are not even mentioned by the author. The former wrote an authoritative treatise in 1498 entitled Las bubas, the latter a treatise in 1517 entitled La mal français. Both works antedated the poem of Fracastorius by many years. The third part of the book is on a subject with which the author is familiar and which he handles admirably. He evidently has much reason for considering yaws and syphilis the same disease. This book is of much interest to the syphilologist and those interested in tropical medicine, but to the ordinary medical man it is technical and to the layman it is confusing. The partial history of the slave trade could have been shortened and the whole subject matter better arranged. Nevertheless, the book as a whole is interesting and the author is to be commended for his zeal.

**Cystoscopy and Urography.** By Jas. B. Macalpine, F.R.C.S., Honorary Surgeon and Surgeon in Charge of the Genito-Urinary Department, Salford Royal Hospital, Manchester. Second edition. Cloth. Price, $9. Pp. 478, with 311 illustrations. Baltimore: William Wood & Company, 1936.

This is an excellent book for the beginner in cystoscopy and for the general practitioner who does a moderate amount of cystoscopy. The cystoscope is fully described and illustrated and the advantages of the various models are clearly presented. The author wisely states that he knows nothing of the direct cystoscope and he does not consider it. Practitioners in this country will wonder that he even bothers to consider a nonirrigating cystoscope and to trouble himself to mention the advantages of the irrigating model. Sterilization of both cystoscopes and ureteral catheters by formaldehyde vapor is described, even though this has long been known to be unreliable. The historical reviews of the various procedures are excellent. The order of examination of the urologic patient is described, but nowhere in the order of examination is excretory urography considered. The various descriptions of the normal bladder, the technic of cystoscopy and the various lesions seen in the bladder are excellently described and illustrated. The volume is considerably enlarged and revised from the first edition, but there still remain many discussions which are solely of historical interest that could be omitted without materially affecting the value of the book. The significance of hematuria is well stated and should be read by all who see urologic patients. Various other points, such as the effect of uterine displacements and tumors on the bladder, purpura, neurogenic bladder, ureteral catheterization, renal function tests, pyelovenous backflow, adrenal diseases, and abnormalities, are well discussed for a volume of this size.

Operative cystoscopy is not well described and the reviewer would hesitate to advise any one to attempt manipulation of ureteral calculi, prostatic resection, or treatment of bladder

tumors from the data presented. For example, when discussing bladder tumors the author states that "the acknowledged uncertainty of the pathological opinion has led me to rely exclusively on clinical, which actually means cystoscopic, data for my diagnosis." This is certainly bad teaching. The advantageous use of the resectoscope in the treatment of bladder tumors is not mentioned. There is nearly as much discussion of pyelovenous backflow as there is of prostatic resection. When one reads the following, one sees the inadequacy of the presentation:

> The sections removed are laid out on a piece of wax in the bottom of a kidney bowl. Having removed a certain number, the surgeon looks at them with a view to deciding their aggregate size. A good way is to gather them side by side between the fingers. Estimate thus the bore of the new channel, and, allowing for inward pressure from remaining parts, consider whether an adequate passage has been provided.

There is a great deal of doubt that with the present rapid advance of transurethral procedures consideration should be given them in a volume on cystoscopy. The size of the field is such that even at present a separate volume on operative cystoscopy is necessary. The term "excretion urography" is championed by the author. This is certainly better terminology than intravenous urography, which is so widely used in this country, but certainly not as grammatically correct as excretory urography, suggested by Braasch. The discussion of this and of instrumental pyelography is quite sound. A complete index is appended.

This is an excellent volume for the teaching of diagnostic urography, but poor for operative cystoscopy.

**Les maladies des fosses nasales.** Par J. Terracol, professeur à la Faculté de médecine de Montpellier. Avec la collaboration des Professeur J. Delmas, et al. Cloth. Price, 130 francs. Pp. 554, with 223 illustrations. Paris: Masson & Cie, 1936.

This is a comprehensive work on the diseases of the nasal fossae. It was written in collaboration with Professors Delman, Margarot and Lamarque and Messrs. Debidour, DeJean, Guibert and Tarneaud. The first part deals with the general pathology of the nasal cavities, with a consideration of the function of smell and respiration as well as of the anatomy of the circulation and such topics as epistaxis. There are also chapters describing the various sensory disturbances as well as the changes in secretion of the mucous membrane. Allergy is dealt with in one of the chapters in considerable detail. The second part of the book is devoted to the special pathology. Under this heading the structural changes such as deviation of the septum and hypertrophy of various parts are described. One chapter is devoted to the involvement of the skin at the entrance of the nose, another to acute rhinitis of epidemic character, and there are chapters on the rhinitis of infants, hypertrophic rhinitis, nasal fractures, nasal tuberculosis and syphilis, as well as chapters on atrophic rhinitis, rhinoscleroma and tumors of the nasal cavities. Nasal leprosy, foreign bodies in the nose and other topics, such as roentgenography of the nose and fossae, are given considerable attention. This is a decidedly valuable treatise presented with the usual French clarity of diction and classification. It is well illustrated, informative and an excellent addition to the literature of rhinology.

**The Microscope.** By Simon Henry Gage. Sixteenth edition, with the addition of a chapter on Micro-Incineration. Cloth. Price, $4. Pp. 617, with 313 illustrations. Ithaca, New York: Comstock Publishing Company, Inc., 1936.

This is a storehouse of information concerning the principles of the microscope and directions for using it, the methods of preparing tissues for study and the newer and more fundamental methods in microscopy. The darkfield microscope is fully treated. This edition has a new chapter on the ultraviolet microscope, which the previous editions did not have. The ultraviolet microscope is an instrument in which small objects may be submitted to the action of ultraviolet radiation and the results observed. There must be available, therefore, some abundant source of ultraviolet such as the carbon arc or the high pressure mercury arc in a quartz tube, and certain other especially designed equipment. This entire edition has been reset and the material generally revised and rearranged. The book was first published twenty-eight years ago; happily the author has lived to revise the present edition and has been assisted by his son, whom he credits largely for the new chapter on ultraviolet microscopy. The author especially emphasizes the study of living and fresh tissues unmodified by stains, of which in the last half century there has been developed a great profusion. The study of living and fresh tissues unstained has been partly made possible by the perfection of the darkfield, the ultraviolet, and the polarizing microscope and the microspectroscope. There is a chapter on photography and one on the history of lenses and microscopes in which there are pictures of persons who have had much to do with the development of lenses, from Jansen in the sixteenth century to Abbe, who lived on into the early part of the twentieth century. This book is encyclopedic as far as the subject of the microscope is concerned. It would be of special interest to beginning students in biology and medicine as well as to the research investigator, whose microscope has come to be such an important aid in his work.

**Les maladies nerveuses.** Par A. Van Gehuchten. Fourth edition. Revised by Dr. P. Van Gehuchten, professeur de neurologie à l'Université de Louvain. Paper. Pp. 718, with 407 illustrations. Louvain: Librairie Universitaire, 1936.

The author adheres to the purpose of his father, which was to prepare a practical textbook of nervous diseases that would be useful to medical students and general practitioners. He has purposely avoided controversial topics and rare maladies. An introductory chapter contains general information on the anatomy and physiology of the nervous system. This is followed by the main body of the work, which includes descriptions of the organic diseases of the peripheral nerves, muscles, spinal cord, brain stem, cerebellum, cerebrum and meninges. Fifty-three pages is then devoted to the functional diseases hysteria, neurasthenia and the traumatic neuroses. A satisfactory alphabetical index appears at the end. While there is a profusion of illustrations, many are small, indistinct and not well labeled. This contribution does not serve the purpose of a reference book, and the reader will often be disappointed by his failure to find information on such subjects as narcolepsy, the more modern treatment of myasthenia gravis and diseases of the sympathetic nervous system. Names of other writers are infrequently encountered, and not a single reference is given. The book fulfils the purpose which the author had in mind when he wrote it.

**Microbiology and Pathology for Nurses.** By Charles F. Carter, B.S., M.D., Director, Carter's Clinical Laboratory, Dallas, Texas. Cloth. Price, $3. Pp. 682, with 152 illustrations. St. Louis: C. V. Mosby Company, 1936.

The major portion of the book is devoted to a well outlined and balanced course in bacteriology. The chapter on immunity is clearly presented, with an excellent discussion of the complement fixation reaction. The constant stress of relationship of the subject under discussion to practical nursing problems is noted throughout and is best observed in the chapters on disinfection and sterilization. The color plates and the other illustrations are well selected. The suggestions for laboratory exercises and questions are an aid to the instructor. References, although few, are well selected. The portion of the book devoted to pathology is rather brief and does not equal the organization and presentation of the bacteriologic section. Special pathology is included, accompanied by good illustrations. The glossary of definitions of common terms will be appreciated by the student.

**Klinik und Therapie der Herzkrankheiten und der Gefässerkrankungen: Vorträge für praktische Ärzte.** Von Privatdozent Dr. D. Scherf. Third edition. Boards. Price, 6.90 marks. Pp. 290, with 10 illustrations. Vienna: Julius Springer, 1936.

The material in this edition as in previous ones is presented in simple fashion without at the same time sacrificing much in the way of accuracy. The presentation avoids the repetitious and cumbersome style usual in textbooks. The exposition is based on the author's own experience and that of the entire Viennese school. The author not only presents the clinical facts but also attempts to explain them rationally. In this edition there is added a section on the diseases of the peripheral vessels, on the cardiac arrhythmias and on the Adams-Stokes syndrome and allied conditions. Many useful diagnostic and therapeutic suggestions will be found. Naturally, some of the observations contained are not widely held in this country, but

little controversial material is presented. For example, the idea that the pulse is small in mitral stenosis is not the universal experience. There is too much stress laid on proprietary drugs and multiple combination of drugs. However, the author rightfully condemns the current American tendency to give tremendous doses of digitalis. This excellent, simple, authoritative presentation of the modern aspects of diseases of the heart and blood vessels is highly recommended for the medical student, practitioner and internist.

**Squint Training.** By M. A. Pugh, M.R.C.S., L.R.C.P., Medical Officer in charge of the Orthoptic Department, Royal London Ophthalmic Hospital. Cloth. Price, $2.75. Pp. 117, with 42 illustrations. New York & London: Oxford University Press, 1936.

In this booklet Miss Pugh has outlined in detail the nonsurgical management of squint as it is practiced at the Royal London Ophthalmic Hospital (Moorfields). The forms of squint are classified as to physical defects, refraction error, fusion defect and psychologic, and each class is discussed as to the results to be expected by orthoptic training. Then the methods of training are gone into in detail, according to the class of squint present, and end results are recorded. Considerable space is devoted to the various types of instruments used. In this connection it is interesting to note that no mention is made of instruments that involve motion, thereby tacitly refuting the extravagant claims of the American manufacturers of recent years. On the whole, the booklet is well written and informative. As it deals with the recent exacerbation of a fairly ancient topic and presents a balanced point of view, it is worth reading.

**A Text-Book of Pathology.** By W. G. MacCallum, Professor of Pathology and Bacteriology, The Johns Hopkins University, Baltimore. Sixth edition. Cloth. Price, $10. Pp. 1,277, with 697 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

In this edition MacCallum's textbook has been thoroughly revised, particularly with reference to the fields of endocrine disturbance, vitamin deficiencies and virus infections. The general purpose of the author remains unchanged, and the subject of pathology is approached from the aspect of etiology and pathogenesis. The morphologic and functional aspects of disease are considered in their manifestations in the body as a whole, rather than as they affect various organs individually. Such an approach is especially valuable to beginning students, as they in this way develop the habit of thinking of disease as it affects the patient as a whole. This textbook has long been a favorite with both students and teachers of pathology because of its superb illustrations and charming style. The book is intended for beginners and for that reason many subjects are treated quite briefly; references to the literature, however, chosen by the author "to direct the student to readable and comprehensive papers which review the subject and give further and more complete references," enable the student to go into the subject in more detail. This book will continue to serve its purpose of making the study of pathology a fascinating and absorbing task.

**Relief slizistoy zheludka i dvenadtsatiperstnoy kishki; gastrit, yazva, kartsinoma.** [By] I. G. Shlifer. Ukrainskiy Gosudarstvenny Rentgenologicheskiy i radiologicheskiy institut. Pod redaktsiey G. I. Kharmandaryana. [Relief of Gastric and Duodenal Mucous Membrane in Gastritis, Ulcer and Cancer.] Cloth. Price, 9 rubles, 70 kopecks. Pp. 356, with 156 illustrations. Kharkov: Gosmedizdat Uk. S. S. R., 1935.

In his monograph, Shlifer reviews the history of the development of the roentgenologic method of study of the contour of the gastroduodenal mucous membrane. This is followed by a comprehensive discussion of the anatomy and the physiology of the gastroduodenal mucosa and the technic of roentgenologic investigation of the normal contour. Special chapters are devoted to the presentation of the value of the method in the diagnosis of gastritis, gastric duodenal ulcer, and cancer of the stomach. Well selected roentgenograms from the author's extensive material (the Ukrainian Roentgenologic-Radiologic Institute) enhance the theoretical discussion. The author stresses the point that the new method is not a supplement to the old method but a part and parcel of the roentgenologic study of stomach and duodenum. The method makes it possible to detect the early functional deviations, thus adding to the number of both direct and indirect roentgenologic signs. The literature on the subject is well covered and appended.

**The Anemias.** By Janet M. Vaughan, D.M., M.R.C.P., Assistant in Clinical Pathology, The British Post-Graduate Medical School. With notes on Normal and Pathological Erythropoiesis. By Hubert M. Turnbull, D.M., F.R.C.P., Director of the Bernhard Baron Institute of the London Hospital. Second edition. Cloth. Price, $4.50. Pp. 309, with 33 illustrations. New York & London: Oxford University Press, 1936.

After a brief discussion of normal erythropoiesis and erythropoietic activity the author offers a rather complete classification of the anemias and thereafter condenses into a small volume a brief discussion of each of the types presented in the classification. Consideration of each of the anemias is clear, concise and unencumbered by lengthy discussions. Although reference to previously published data is largely limited to the works of English and a small group of American authors and the discussions of treatment of the various forms of anemia are somewhat too limited for practical purposes, the book should be a distinct aid to those who are familiar with the various laboratory procedures available for the study of hematologic problems in the differential diagnosis of the several anemias. Because of the extent of the subject matter considered and the author's clear cut and easily readable presentation, the book is particularly to be recommended for the recent graduate in medicine and as a reference book for the physician who has occasion only infrequently to encounter problems in anemia.

**A Manual of Practical Obstetrics.** By O'Donel Browne, M.B., B.Ch., B.A.O., Assistant Gynæcologist, Sir Patrick Dun's Hospital, Dublin. Cloth. Price, $6.50. Pp. 363, with 246 illustrations. Baltimore: William Wood & Company, 1936.

This manual is devoted entirely to practical obstetrics. The illustrations are simple, mostly line drawings, but effective in bringing out the facts to be illustrated. The text is concise and readable and brings out the essential points. The book is not entirely adapted to the American practitioner, as a terminology is employed that is not commonly used in the United States. Some of the illustrations and text describe operations in the lateral posture, which position is seldom used here. Some operations are described which are seldom if ever employed in this country, such as pubiotomy for dystocia and jejunostomy for cases of hyperemesis. The incorporation of chapters on blood typing and obstetric radiology is of definite value. The treatment of various conditions differs in many instances from that generally employed in this country; for example, the use of tents for dilation of the uterine cervix is almost obsolete, and forcible dilation of the cervix of the woman in labor by manual or instrumental methods is generally condemned.

**A Short Practice of Surgery.** By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., Surgeon, Royal Northern and Metropolitan Hospitals, London. Third edition. Cloth. Price, 28s. Pp. 995, with 763 illustrations. London: H. K. Lewis & Co., Ltd., 1936.

This edition, published in June, now is in one volume. The previous reviews of the first two editions placed special emphasis on the clinical applicability of the text. The authors have added thirty-two additional illustrations so as to visualize the disease processes more accurately. The various classifications help to organize the subject material and simplify its further clinical consideration. Congenital malformations, with their recognition and treatment, are quite inclusive. The chapters on bone and joint diseases are descriptive and comprehensive. This volume serves the dual purpose of furnishing an introductory textbook to the student and a readily accessible textbook to the general practitioner. The new edition is a highly satisfactory addition to the manuals of general surgery.

**Manual of Roentgenological Technique.** By L. R. Sante, M.D., Professor of Radiology, St. Louis University School of Medicine. Third edition. Cloth. Price, $4.50. Pp. 226, with illustrations. Ann Arbor, Michigan: Edwards Brothers, Inc., 1936.

This volume was prepared primarily for aid in the training and supervision of roentgenographic technicians and secondarily for the use of the general medical profession. It is written in simple language and published by the lithographic printing method to provide flexibility in making additions to and eliminations from the text. After a brief historical introduction the book develops the subject from a physical and mechanical point of view of x-ray technic and then discusses essential factors in roentgenologic procedure and dark room technic. The remain-

ing portions of the book are concerned with standard precautions for protection from excessive x-ray exposure and instructions to the technician. The book is plentifully supplied with excellent illustrations, with pages for inserted notes and with a comprehensive and excellent index. Its wide use in schools for x-ray technicians has established its practical character.

## Bureau of Legal Medicine and Legislation

### MEDICOLEGAL ABSTRACTS

**Voluntary Patient at Government Narcotic Farm Entitled to Release on Demand.**—The federal narcotic farm at Lexington, Ky., was constructed by the federal government primarily for the confinement and treatment of prisoners convicted of offenses against the United States who are addicted to the use of narcotic drugs. Provision is made, however, whereby any narcotic addict may voluntarily become an inmate of the institution, subject to the following conditions:

"No such addict shall be admitted unless he voluntarily submits to treatment for the maximum amount of time estimated by the Surgeon General of the Bureau of the Public Health Service as necessary to effect a cure. . . . Provided, That if any addict voluntarily submits himself to treatment he may be confined in a United States narcotic farm for a period not exceeding the maximum amount of time estimated by the Surgeon General of the Bureau of the Public Health Service as necessary to effect a cure of the addiction or until he ceases to be an addict within the meaning of this chapter: And provided further, That any person who voluntarily submits himself for treatment at a United States narcotic farm shall not forfeit or abridge thereby any of his rights as a citizen of the United States; nor shall such submission be used against him in any proceeding in any court, and that the record of his voluntary commitment shall be confidential and not divulged."—*Title 21, United States Code, Annotated, sec. 232.*

Lloyd, a narcotic addict, applied for admission as a voluntary inmate to the narcotic farm, agreeing to the conditions of admission, and was admitted. Before the maximum amount of time estimated by the Surgeon General of the Bureau of the Public Health Service as necessary to effect a cure had expired, Lloyd demanded his release. The demand was denied and he petitioned the United States district court, eastern district, Kentucky, for a writ of habeas corpus.

The superintendent of the narcotic farm, in answer to the petition, asserted that Lloyd was still an addict with extremely unstable personality, with inebriate impulses and emotional instability, that he had not received the maximum benefit of the prescribed treatment, and that in the opinion of the medical board he should not be released from the institution. The superintendent further contended that Lloyd had signed an agreement to comply with all the conditions of admission and thereby granted to the officials lawfully in charge of the farm authority to use any reasonable method of restraint to prevent his departure until eligible for release under the terms and conditions of his contract. The contention of the superintendent, said the court, was apparently that the purpose of the act was to authorize specific enforcement of the terms and conditions of the contract entered into by a voluntary inmate by subjecting him to compulsory confinement at the institution for the time specified in the contract. But, said the court, if the act be so construed, serious constitutional barriers to its validity would be encountered. The fifth amendment of the federal constitution provides that no person shall be deprived of liberty without due process of law and the thirteenth amendment provides that involuntary servitude, except as a punishment for crime whereof the party has been duly convicted, shall not exist within the United States. The contention urged by the superintendent, the court observed, would necessarily carry with it the implication of power to enforce on a voluntary inmate all prescribed rules and regulations, including the power to coerce labor in shops, factories or other industries established on the farm for the manufacture of commodities and supplies for the United States government. The fact that Lloyd at some previous time consented to submit himself to confinement does not withdraw the enforced imprisonment from the condemnation of the provisions of the federal constitution referred to above. The intent of the constitutional provisions could be defeated with obvious facility if citizens could be held to involuntary servitude or enforced imprisonment, through the guise of contracts.

Furthermore, the court said, the fact that an act of Congress authorizes the making of a certain character of contract does not carry the implication that Congress intended to grant to one contracting party the power or authority to use force or coercion on the other party to prevent his breach of the contract. The guaranteed constitutional rights embrace the right not only to make contracts but also to terminate or renounce them, leaving the remedy for the breach of civil damages, subject only to the jurisdiction of equity to decree specific performance in proper cases. The fact that the beneficial effect of the act as a regulatory measure, designed to promote law observance, good order, morals, peace and safety, may be defeated without the power to enforce observance of admission agreements in cases of voluntary patients is immaterial, the court said. The right to regulate such matters within the several states is not delegated to the federal government but is reserved to the states. The federal laws that have been enacted to regulate, within the several states, the possession of and traffic in narcotic drugs have been upheld because they are revenue measures. Their constitutional support rests solely in the taxing power granted by the constitution to the federal government. Such results as may be derived from them within the several states in the promotion of peace, morals and general good order are merely incidental and afford no basis for their constitutional validity.

Compulsory detention of a voluntary patient in the institution, the court continued, as a means to accomplish his enforced observance of the terms and conditions of his contract of admission, is entirely out of harmony with the letter as well as the manifest spirit of the law. The act is charitable and benevolent in respect to voluntary patients and not penal or criminal in its nature. The government may fix the terms and conditions on which admission to the narcotic farm and the privilege of sojourning there may be granted to those who voluntarily seek to avail themselves of its benefits and opportunities for treatment. With respect to such patients, however, compliance with such terms and observance of all prescribed rules and regulations may be enforced only so long as they voluntarily remain as patients or inmates of the institution. The privilege of abiding at the institution may be denied or withdrawn, but the law does not authorize coercion of continued acceptance of the government's charity and benevolence by subjecting voluntary patients to compulsory confinement or detention at the institution, even though such enforced confinement may be for their personal welfare and in specific performance of the patient's agreement to submit thereto.

The court accordingly granted the petition for a writ of habeas corpus.—*Ex Parte Lloyd, 13 F. Supp. 1005.*

## Society Proceedings

### COMING MEETINGS

American Academy of Orthopedic Surgeons, Cleveland, Jan. 11-13. Dr. Philip Lewin, 55 East Washington St., Chicago, Secretary.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 7. Dr. D. C. Jarvis, Quarry Bank Bldg., Barre, Vt., Chairman.

Middle Section, American Laryngological, Rhinological and Otological Society, Chicago, Jan. 11. Dr. Alfred Lewy, 25 East Washington St., Chicago, Chairman.

Mid-Western Section, American Laryngological, Rhinological and Otological Society, Chicago, Jan. 11. Dr. Frederick A. Figi, 436 Tenth Ave., S.W., Rochester, Minn., Chairman.

Puerto Rico, Medical Association of, San Juan, Dec. 18-20. Dr. Dolores M. Pinero, Ave. Fernandez Juncos, Parada, 19, Santurce, Secretary.

Society of American Bacteriologists, Indianapolis, Dec. 28-30. Dr. I. L. Baldwin, College of Agriculture, University of Wisconsin, Madison, Wis., Secretary.

Southern Section, American Laryngological, Rhinological and Otological Society, Memphis, Tenn., Jan. 13. Dr. Charles D. Blassingame, Physicians and Surgeons Bldg., Memphis, Tenn., Chairman.

Southern Surgical Association, Edgewater Park, Miss., Dec. 15-17. Dr. E. Alton Ochsner, 1430 Tulane Ave., New Orleans, Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, San Diego, Calif., Jan. 30-31. Dr. David R. Higbee, 3245 Fourth Ave., San Diego, Calif., Chairman.

Western Surgical Association, Kansas City, Mo., Dec. 11-12. Dr. A. H. Montgomery, 122 S. Michigan Blvd., Chicago, Secretary.

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

### American Journal of Diseases of Children, Chicago

**52:** 773-1046 (Oct.) 1936

*Congenital Muscular Hypertrophy. B. E. Hall, F. W. Sunderman and J. C. Gittings, Philadelphia.—p. 773.
Serum Cholesterol Values for Children. F. M. Offenkrantz and M. Karshan, New York.—p. 784.
Effect of Moccasin Venom on Urinary Changes in Scarlet Fever. S. S. Schneierson, J. D. Lyttle and S. M. Peck, New York.—p. 796.
*Second Attacks of Poliomyelitis in Macacus Rhesus Monkeys. J. A. Toomey, Cleveland.—p. 802.
Respiratory Metabolism in Infancy and in Childhood: XVIII. Respiratory Exchange in Premature Infants—Basal Metabolism. H. H. Gordon and S. Z. Levine, New York.—p. 810.
Estimation of Vitamin D in Blood Serum. J. Warkany, Cincinnati.—p. 831.
Study of 330 Premature Infants. D. A. Wilcox, New York.—p. 848.
Involution of Adrenal Glands in Newly Born Infants: Biochemical Inquiry into Its Physiologic Significance. H. Bruch and D. J. McCune, New York.—p. 863.
Epidemic Lymphocytic Meningo-Encephalitis: Report of Thirty-Seven Cases Occurring in Philadelphia. E. L. Noone, K. Habel and Helen E. Riggs, Philadelphia.—p. 870.

**Congenital Muscular Hypertrophy.**—In addition to the case of Hall and his associates, possibly five other cases have been reported in the literature. In their case there were an abnormally high excretion of creatine and creatinine in the urine and an exaggerated response in the creatine excretion to variations in the amount of protein ingested. The concentrations of potassium, inorganic phosphate and phosphatase in the blood serum were high. The greatly hypertrophied voluntary muscles were normal histologically and in their reaction to electrical stimulation. Any of the main features of the syndrome may be subject to considerable variation. The pathologic process responsible for the disturbance in the extrapyramidal system is uncertain. The four patients whose cases were reported previously died during the first twenty months of life. Two of Delange's patients apparently died as a result of the disease. The authors' patient has lived longer than any of the others. After his discharge from the hospital he was admitted to an institution for the feebleminded, and he was reported in January 1936 to be thriving, at the age of 2½ years, without any change in his muscular overdevelopment. The differentiation of the syndrome from myotonia congenita (Thomsen's disease) may be made on the basis of the age at which it appears, the clinical picture, electrical stimulation of the voluntary musculature and biopsy of muscles. In congenital muscular hypertrophy, hypertonia associated with massive hypertrophy of the musculature of the body is present at birth, there is no difficulty in the initiation or cessation of movements, the reactions to electrical stimulation are normal and biopsies show normal muscles. The syndrome appears to be easily differentiated from the pseudohypertrophic type of muscular dystrophy. The latter condition is invariably accompanied by muscular weakness and exhibits histologic degenerative changes in the muscle fibers. The high total creatinine nitrogen coefficient observed in the present case is of unusual interest. Schiff and Balint, while studying the excretion of creatine and creatinine in the urine of infants with various diseases of the muscular system, observed one patient with a high total creatinine coefficient. Their diagnosis was encephalitis, but their observations suggest that their case might belong in the group under discussion. The increase in the concentration of potassium and inorganic phosphate in the serum, as well as the increase in the excretion of creatine and creatinine in the urine, may be related to the increase in muscular development and metabolism, since the concentrations of potassium and inorganic phosphate are normally higher in muscle tissue than in blood serum. The authors cannot explain the occurrence of a high phosphatase content in the serum of their patient. There was no evidence of disease of the bones or of the liver in the clinical observations or roentgenograms.

**Second Attacks of Poliomyelitis in Macacus Rhesus Monkeys.**—Toomey states that Macacus rhesus monkeys that received injections of virus either by way of the gastro-intestinal tract or intracerebrally and that had paresis or limited palsies as a result contracted the disease again when subsequently given injections of homologous virus intracerebrally. Animals that had severe quadriplegia after the introduction of the first or of any subsequent injection of the virus seemed to be protected from the effects of doses ordinarily used in experimental work. The animals that showed ordinary quadriplegia and recovered, irrespective of the dose of the virus, were probably immune, since they did not contract the disease again even when repeated intracerebral injections were given of doses as high as 2 cc. of a 10 per cent virus suspension. Quadriplegia developed between six and ten days after injection in five animals that were given 0.2 cc. of a 1 per cent solution and also in five others given 2 cc. of a 10 per cent solution of the same virus suspension. Irrespective of the original dose, the animal that had quadriplegia seemed to be protected not only from the usual dose required to produce the disease but from many multiples of that dose. Paul and Trask's lack of success with reinoculation may be due to the fact that they employed the same dose and percentage of virus for both the original and the subsequent injections. When they used a heterologous strain of virus, they were able to reinfect the animals easily, as were Burnet and MacNamara. It may be that virus differs only quantitatively and not qualitatively. The evidence that there are qualitative differences is based on the generally accepted belief that an animal is not reinfected with a homologous strain of virus but that it may be reinfected with a heterologous strain. This report casts doubt on the validity of the assumption that reinoculation of homologous virus cannot reinfect monkeys.

### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

**36:** 293-436 (Sept.) 1936

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Cholecystographic Findings Following Cholecystostomy. E. L. Jenkinson, Chicago, and J. M. Foley, Peoria, Ill.—p. 301.
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*Radiation Therapy of Inoperable Intra-Abdominal Malignancy, with Especial Reference to Stomach. E. A. Merritt, Washington, D. C.—p. 324.
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*Use of Long Target-Skin Distances in Roentgen Therapy. Edith H. Quimby, New York.—p. 343.
Comparative Clinical Value of Supervoltage Roentgen Therapy: Case Reports. T. Leucutia, Detroit.—p. 350.
A Year's Experience with 800 Kilovolt Roentgen Rays. H. E. Ruggles, San Francisco.—p. 366.
*One and One-Half Years' Experience with Supervoltage Roentgen Rays, with Especial Reference to Carcinoma of Urinary Bladder and Cervix Uteri. C. B. Ward, J. E. Wirth and J. E. Rose, Seattle.—p. 368.
Release of Ultraviolet Radiation from Roentgenized Substances by Visible Light. O. Glasser and I. E. Beasley, Cleveland.—p. 381.
Roentgen Cinematography. R. Janker, Bonn, Germany.—p. 384.
Factors Influencing Quantitative Measurement of Roentgen-Ray Absorption of Tooth Slabs: V. Theory of Step Tablet. H. C. Hodge and S. L. Warren, Rochester, N. Y.—p. 391.

**Radiation Therapy of Abdominal Malignant Growths.**—Merritt avers that the diagnosis of a gastric malignant condition can be made with a higher degree of accuracy by the roentgen examination than by any and all other methods, not excepting exploration and the microscopic section. The sensitivity of the malignant stomach to irradiation is readily determined by subjecting the patient to radiation therapy. Now that the fractional method of Coutard or its modification is coming into general use, one may determine within a period of two or three weeks at most the degree of tumor sensitivity,

which applies to malignant neoplasms of the stomach as well as to other suspected intra-abdominal malignant tumors. The author has advocated preoperative irradiation of obscure abdominal tumors for some years and has never observed that it delayed or prevented recovery. On the other hand, there is indubitable proof of its great value as a life saving measure. Of thirteen patients treated since January 1934, three are living and apparently well and free from all evidence of disease, roentgen examinations of their stomachs having been made recently. One is living with roentgen evidence of disease. Nine are dead of the disease. These cases were treated without regard to the condition of the patient or the extent of involvement of the stomach, and most of those who died and one of the living patients were in a dying condition when treated. Subjects suffering from malignant disease of the stomach tolerate treatments very well. Treatments are given daily, after the modified Coutard technic.

**Long Target-Skin Distances in Roentgen Therapy.**—Quimby shows that relative depth doses for various target-skin distances can be calculated according to the inverse square law. If actual depth doses are known for any distance, they can be calculated for any other, at least between 50 and 150 cm. The increase in depth dose with distance is small near the surface and becomes steadily greater with increasing depth. It is not, however, advantageous to use distances greater than ten to twelve times the depth of the tumor. It is known that the time necessary to deliver a specified amount of radiation increases as the square of the distance. From a practical point of view, this increase in time is an important economic factor. From a biologic aspect it introduces complications because of differences in tissue recuperation. It would be expected to make the use of long distances more valuable in radioresistant than in radiosensitive conditions. The problem of localization of the field with regard to the lesion becomes increasingly important with the use of longer distances.

**Supervoltage Roentgen Rays in Cancer Therapy.**—From clinical observations, Ward and his associates are convinced that 800 kilovolt roentgen rays have a distinct advantage in depth dose over 200 kilovolt roentgen rays, and that this advantage becomes more apparent when smaller ports are used. Excellent primary regression has been obtained in a few cases in almost every type of neoplastic disease in which the 200 kilovolt units might be effective. Among these there have been ten cases of carcinoma of the urinary bladder and seven cases of carcinoma of the cervix uteri that serve as a yardstick with which to measure progress. Of the ten cases of advanced carcinoma of the urinary bladder treated by supervoltage roentgen rays, four show complete primary regression of the disease, which has now lasted from eight to fourteen months without recurrence. One patient probably had complete primary regression of the disease, but 12 millicuries of radon in gold seeds was added cystoscopically five weeks after completion of the roentgen therapy. Nine months has elapsed without recurrence. In one patient the major portion of the bladder tumor regressed, but 29 millicuries of radon in gold seeds was inserted through a suprapubic cystostomy in the extravesical extension and mucosa over it five weeks after completion of the roentgen therapy, and in eight months there has been no evidence of recurrence. There were four cases in which neither primary nor late complete regression of disease was obtained. One of these patients is living fifteen months after treatment, but the others died eleven, three and three and a half months after completion of roentgen treatments. These cases were treated with only two skin ports, a center anterior and posterior 12 cm. circular skin port; the smallest dose given was 3,000 roentgens to the anterior and 3,000 roentgens to the posterior field, while the larger doses were 4,200 roentgens to each of two opposing fields. By this type of set-up all the treatment given was the most effective treatment that could be given to the bladder itself without irradiating the whole pelvis. Of the seven cases of advanced carcinoma of the cervix uteri treated by supervoltage roentgen rays, two of the three cases of carcinoma of the cervical stump have shown complete primary regression of the disease for ten and six months and the other one has been apparently free from disease for ten months, but roentgen therapy was supplemented by 750 millicurie hours of radium at 1 cm. distance to the left side of the vaginal vault and remains doubtful. Two of the four regular cervix cases have shown complete primary regression of disease, which has persisted for ten months. The other two patients did not show complete primary regression and died four and nine months after completion of treatment. These seven patients received a minimum of 3,000 roentgens to each of two ports, and a maximum to six pelvic ports made up of 1,400 roentgens to each of four lateral pelvic ports and 2,450 roentgens to each of two opposing central ports.

## American Review of Tuberculosis, New York

**34:** 437-560 (Oct.) 1936

*Use of BCG Vaccine Against Tuberculosis in Children: Eight Years' Experience. Camille Kereszturi and W. H. Park, New York.—p. 437.
Study of Pathology of Experimental Pulmonary Tuberculosis in Rabbit. E. M. Medlar and K. T. Sasano, Mount McGregor, N. Y.—p. 456.
Correlation of Blood Counts and Clinical Symptoms with Recovery from Tuberculosis: Statistical Study. C. H. Boissevain, A. M. Forster and B. D. Good, Colorado Springs, Colo.—p. 477.
*Erythrocyte Sedimentation Rate in Estimating Activity in Pulmonary Tuberculosis. W. O. Kelley, Trudeau, N. Y.—p. 489.
Influence of Radio Ultrashort Wave Therapy on Experimental Tuberculosis in Guinea-Pigs. D. H. Kling and H. M. Rubin, Los Angeles. —p. 498.
Effect of Thoracoplasty and Phrenic Paralysis on Total Volume of Lung and Its Component Parts. G. E. Lindskog and I. Friedman, New Haven, Conn.—p. 505.
Pulmonary Cystic Disease. W. C. Pollock, Denver.—p. 527.
Postsanatorium Care at the Bellevue Settlement House. Clara Regina Gross, Bellevue, N. Y.—p. 540.
Comparative Tuberculosis Findings Among Indians and White Persons in Cattaraugus County, New York. J. H. Korns, Olean, N. Y.—p. 550.

**Use of BCG Vaccine.**—Kereszturi and Park feel that BCG vaccination is free from danger to children. They have had the same experience with 515 exposed BCG children. On the average, in some respects they did as well as the corresponding controls and in other respects better. Four of them died of tuberculosis. All four were examined post mortem and studied bacteriologically, and tubercle bacilli of human type, characteristic by culture and animal inoculation, were recovered from the organs in three cases, which means that human tubercle bacilli and not the BCG caused their death. The pus of thirty-one BCG abscesses was aspirated, cultures were taken, and the bacilli were obtained in twenty-seven. The stay of the bacilli in the human body varied from one to ten months. An increase in virulence could not be determined. In their investigation whether the BCG culture is effective in preventing tuberculosis among vaccinated children the authors observed 269 orally vaccinated BCG children, 421 parenterally vaccinated BCG, 345 controls known since birth and 410 controls not known from birth with negative initial Mantoux tests. The tuberculosis death rate among the controls known from birth is more than twice as high as among the orally vaccinated babies. On the other hand, the negative Mantoux control cases showed a tuberculosis death rate about four times as high as that among the corresponding treated group; that is, among the parenterally vaccinated BCG babies. The diagnosis of the cause of death can be considered accurate, as all but five of 101 children who died of tuberculous and nontuberculous diseases died in hospitals. It is worth while to make every effort to diminish the risk of death due to tuberculosis among children of tuberculous families by giving the BCG vaccine as early as possible. Through the use of BCG vaccine parenterally the death rate was cut only to its fourth. However, if a way could be found to reach all children of tuberculous families at birth and a means obtained to separate them from tuberculous contact, as Wallgren did, three months before and as long after vaccination until allergy to tuberculin appears, the BCG vaccine could be made much more effective. Therefore its use should be urged as a public health measure for the prevention of tuberculosis in those who have not yet become infected and who may later be exposed to tuberculosis in their own families.

**Sedimentation Rate in Estimating Activity in Tuberculosis.**—Kelley performed 1,381 sedimentation rates on 290 patients with pulmonary tuberculosis. A close correlation was found between the sedimentation rate and the roentgenogram in a study of the activity of the tuberculous process. In a series of 106 cases the leukocyte count did not appear to be quite as accurate an index as the sedimentation rate in determining activity. The comparison between the sedimentation

rate and the other clinical and laboratory observations, such as sputum, presence of moderately coarse râles and symptomatic activity, was definite but not as marked as that between the sedimentation rate and the x-ray changes. The sedimentation rate quite accurately followed the course of the disease and in some cases gave warning of relapses before new shadows appeared in roentgenograms. In 80.5 per cent of the cases with pleurisy, the sedimentation rate was abnormal. Simplification of the technic by making only one reading at the end of an hour would prove quite practical for clinical work.

## Annals of Surgery, Philadelphia

**104:** 321-480 (Sept.) 1936

Restoration of Defects in Skull, with Especial Reference to Management of Intrinsic Tumors of Skull and Certain Types of Localized Osteomyelitis. H. C. Naffziger, San Francisco.—p. 321.
Comparative Studies on Traumatic Shock Under Ether and Under Sodium Amytal Anesthesia: Experimental Research. S. F. Seeley, H. E. Essex and F. C. Mann, Rochester, Minn.—p. 332.
*Modified Dorsal Sympathectomy for Vascular Spasm (Raynaud's Disease) of Upper Extremity: Preliminary Report. R. H. Smithwick, Boston.—p. 339.
Resection of Presacral Nerve for Dysmenorrhea and Pelvic Pain. W. D. Abbott, Des Moines, Iowa.—p. 351.
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Gastroduodenal Surgery. J. E. Strode, Honolulu, Hawaii.—p. 373.
*Peritonitis as Factor in Mortality of Gastro-Intestinal Surgery. P. Shambaugh, Boston.—p. 382.
Induced and Spontaneous Changes in Blood Amylase, Particularly in Relationship to Pancreas: Experimental Study. I. Friedman and W. R. Thompson, New Haven, Conn.—p. 388.
Inguinal Hernia: Report of 1,600 Operations. L. S. Fallis, Detroit.—p. 403.
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Perineal Prostatectomy: Survey of Sixty-Seven Consecutive Cases. W. W. Baker, Philadelphia.—p. 424.
Rhabdomyosarcoma of Neck. L. W. Frank, C. D. Enfield and A. J. Miller, Louisville, Ky.—p. 431.
Surgical Treatment of Tumors of Peripheral Nerves. E. C. Cutler and R. E. Gross, Boston.—p. 436.
*Benign Metastasizing Hemangioma. J. M. Robinson and B. Castleman, Boston.—p. 453.
Importance in Surgery of Blood Circulation Time. G. Webb, W. Sheinfeld and H. Colin, Brooklyn.—p. 460.

**Modified Dorsal Sympathectomy for Raynaud's Disease of Upper Extremity.**—Smithwick has employed a modified dorsal sympathectomy in twenty-three cases of vascular spasm of the upper extremities. The technic consists of a vertical paramedian incision about 6 cm. long, 3 cm. from the midline, the incision being centered opposite the second dorsal spinous process. The inner inch of the third rib and corresponding transverse process are resected. The inner 1½ inches of the second and third intercostal nerves are resected from the intervertebral foramen outward. The dorsal sympathetic trunk is identified between the second and third dorsal ganglions and is sectioned just below the third dorsal ganglion; the upper end of the sectioned trunk is brought out of the thorax and sutured without tension to the muscles of the back. The intercostal nerves are resected in order to guarantee a complete ramisectomy and also as an additional safeguard against regeneration. This results in a zone of anesthesia about the thorax, which becomes so narrow in a few months that it is a matter of no importance. The axillary region remains quite anesthetic and perspiration is inhibited. By this operation all possible sympathetic connections between the dorsal cord and the brachial plexus are severed except those which might be contained in the first dorsal nerve. The author believes that only preganglionic fibers are divided in this operation and that the postganglionic fibers to the arm are left intact. The clinical results to date would indicate that few if any efferent sympathetic fibers to the hand pass over the first dorsal nerve. From a clinical point of view this modified type of sympathectomy is not followed by recurrence of vascular spasm due to the action of epinephrine on the blood vessels in the sympathectomized area. This was the greatest drawback to the operation of cervicodorsal ganglionectomy and rendered that operation unsatisfactory.

**Peritonitis and Gastro-Intestinal Surgery.**—Shambaugh declares that there are certain considerations which question operative soiling as the important cause of fatal peritonitis. The natural defensive powers of the peritoneum in experimental animals are sufficiently great to withstand a definite and considerable inoculation with bacteria, except those of great virulence, provided this inoculation is not a prolonged feeding in of organisms as from a suppurative focus or from an opening into the lumen of the intestine. That the peritoneum in man is probably almost equally resistant is evidenced by the frequent prompt recovery from peritonitis after the surgical removal of a gangrenous appendix. In addition, there is the clinical observation that there is frequently more or less unavoidable soiling when the intestine is opened at operation, and yet fatal peritonitis is the exception in such cases rather than the rule. In order to determine the relative importance of peritonitis as a cause of death following operative procedures on various parts of the gastro-intestinal tract and to investigate the cause of the peritonitis in these fatal cases, the deaths following gastro-intestinal surgery at the Peter Bent Brigham Hospital from 1913 to the present time were analyzed, only those being included in this study which were submitted to postmortem examination. Of ninety-one cases studied, there were twenty-three deaths of peritonitis. Necropsy was done in twenty-five fatalities and in these the operative procedure had been gastric resection in thirteen cases, gastrojejunostomy in nine cases, gastrojejunostomy with pyloroplasty in three cases and gastrostomy in one case. In eight cases the operation had been undertaken for peptic ulcer and in the remaining seventeen for carcinoma of the stomach. In these twenty-five cases, peritonitis was the cause of death in four. Of fourteen surgical cases of the small intestine in which necropsy was done, two deaths were due to peritonitis. Of fifty-two fatalities in which surgery of the large intestine was performed, peritonitis was found at necropsy to be the cause of death in seventeen cases. A study of the postmortem observations in the twenty-three cases of fatal peritonitis reveals the significant fact that in all but six cases a definite focus of contamination was found. This focus proved to be a grossly leaking anastomosis in five cases, a perforation through a carcinoma in three cases, and a fecal leak in three other cases, due respectively to an open appendiceal stump, the slough caused by a tight suture and the tearing out of a cecostomy tube. In five cases the infective focus was gangrenous intestine caused by impaired blood supply, and in one case the focus was a fulminating wound infection involving all layers of the abdominal wall. In only six instances, therefore, could the fatal peritonitis be attributed to contamination of the peritoneal surfaces at operation.

**Benign Metastasizing Hemangioma.**—Robinson and Castleman find that only four apparently authentic cases of hemangiomas have been reported: by Borrmann, Shennan, Ewing and Geschickter and Keasbey. They have given rise to considerable discussion because the existence of such a group has an intimate bearing on the question of the essential similarity of benign and malignant processes and because they are difficult to classify. The authors have recently had the opportunity to study a case which helps to clarify the paradox of a metastasizing benign tumor. It seems to them that the case they report is a connecting link between the four cases cited in the literature and the true angiosarcomas. Theirs is evidently an example of an apparently histologically benign tumor giving rise to malignant metastases. To assume that this is a case of multiple tumors, one would have to admit that there were numerous hemangiomatous rests, such as Ribbert (quoted by Borrmann) describes, which began to grow under the influence of local or general factors. If this were true, one would expect these secondary tumors to have been discernible either at the same time as the original tumor or certainly within a shorter period than one year. Since it is highly improbable that this is a case of multiple tumors but rather that the lesions that appeared following the original breast tumor were really metastases, they must conclude that they are dealing with a process which was malignant from the onset and that the primary tumor, in spite of the absence of histologically malignant properties, was not benign. They feel that, because the histologic structure of their case is similar to the quoted cases, especially those of Borrmann and Ewing, it is probable that the latter were also primary malignant tumors. This is in agreement with Shennan's concept that it is the occurrence of metas-

tasis which should be the deciding factor and not the histologic features. The response of this tumor to various forms of radiation shows it to be highly radioresistant.

## Archives of Surgery, Chicago

**33:** 545-732 (Oct.) 1936

Chronic Thyroiditis: Comparative Analysis of 100 Cases. A. E. Wallis, New York.—p. 545.
*Roentgen Irradiation of Ovaries as Supplement to Surgical and Radium Therapy for Mammary Cancer. J. T. Witherspoon, New Orleans.—p. 554.
Acute Cerebral Injuries: Analysis of Temperature, Pulse and Respiration Curves. B. Woodhall, Baltimore.—p. 560.
Lethal Factors in Bile Peritonitis: I. "Surgical Shock." H. N. Harkins, P. H. Harmon and Jeanne Hudson, Chicago.—p. 576.
Histopathologic Study in Case of Perthes' Disease of Traumatic Origin. Gertraude Pich, Vienna, Austria.—p. 609.
Investigation into Wiring of Spinous Processes as Means of Internal Spinal Fixation. A. D. Kurtz and M. T. Horwitz, Philadelphia.—p. 630.
Experimental Pulmonary Abscess: II. Transmission of Disease to Dogs by Bronchial Route. C. Weiss, A. Goldman and Marian C. Shevky, San Francisco.—p. 649.
Mechanical Decompression of Intestine in Treatment of Ileus: I. Effect of Stripping on Blood Pressure. A. H. Storck and A. Ochsner, New Orleans.—p. 664.
Id.: II. Effect of Intestinal Activity. A. H. Storck and A. Ochsner, New Orleans.—p. 670.
Endocholedochal Section of Sphincter of Oddi. R. Colp, H. Doubilet and I. E. Gerber, New York.—p. 696.
*Fat Embolism: Experimental Study on Value of Roentgenograms of Chest in Diagnosis. F. J. Jirka and C. S. Scuderi, Chicago.—p. 708.
*Primary Streptococcic Peritonitis. L. H. Pollock, New York.—p. 714.

**Irradiation of Ovaries as Supplement to Surgical Therapy for Mammary Cancer.**—Witherspoon believes that clinical and laboratory evidence and general observations support the hypothesis that roentgen irradiation of the ovaries, with subsequent estrogenic inactivity, is beneficial as an auxiliary treatment to surgical intervention and radium therapy in the treatment of carcinoma of the breast. The theory that general systemic influences, such as hormone stimulation, are a causative factor is becoming important. The extremely malignant character of cancer of the breast as a complication of pregnancy is widely recognized, and evidence is accumulating, based on general clinical impressions, which suggests that carcinoma of the breast is many times more malignant and less curable in young women in whom the estrogenic principle is still active than in patients who have passed the menopause. As previously stated, the growth-promoting action of estrogenic substance is the main factor in mammary development at puberty. Watson reported marked development of the breasts in a girl 19 years of age with hypogonadism and amenorrhea, who was given estrogenic substance in large doses. Geschickter, Lewis and Hartman investigated its action on hypertrophy of the breast and the formation of a tumor. They concluded that gynecomastia in the male and virginal hypertrophy and fibro-adenoma in the female breast are dependent on pathologic variations in the action of estrogenic substance on the duct epithelium and surrounding breast tissues. These observers have demonstrated the presence of the estrogenic principle in a fibro-adenoma of the breast. Since the rate of growth of mammary cancer in animals is accelerated by the estrogenic principle, and since hypertrophy of the breast and the formation of a benign tumor in human beings are also influenced by it, it seems logical to conclude that a malignant growth of the human breast may likewise be affected by the action of estrogenic substance. Bilateral oophorectomy retards the rate of growth of a malignant tumor of the human breast and causes regression of metastatic nodules. In the treatment of mammary carcinoma, therefore, all estrogenic activity should be destroyed by roentgen irradiation of the ovaries, since the presence of the hormone is an exciting growth factor on the breast and on the mammary cancer. Induction of the menopause, especially in young women, in the treatment of carcinoma of the breast may seem somewhat radical, but in view of the tremendous growth-promoting properties of the estrogenic principle on secondary sexual tissue this treatment is rational. Only clinical application of this auxiliary therapy will prove its value.

**Fat Embolism.**—Jirka and Scuderi used eleven dogs, weighing close to 12.5 Kg., in their experiments. Sterile oleic acid was given intravenously to six animals and sterile olive oil to five. Doses of varying amounts were used in each experiment. They found that 0.16 cc. of oleic acid or of olive oil per kilogram of body weight is sufficient to produce changes in the pulmonary fields that may be visualized roentgenographically. These changes can be demonstrated for from five to seven days after the injection and as shortly as twenty minutes after the oil has been placed in the blood stream. A diffuse haziness or cloudiness of the pulmonary fields has been persistently present in all the experimental animals. The uniformity of their results convinces the authors that droplets of fat in the pulmonary circulation, if present in sufficient number, will always produce changes in the pulmonary fields that are detectable in roentgenograms. Roentgenograms of patients suffering from clinical fat embolism should be of definite diagnostic aid.

**Primary Streptococcic Peritonitis.**—Analysis of forty-two cases of streptococcic peritonitis leads Pollock to believe that the condition can be readily recognized in most instances when it is recognized that it is seen most frequently in infants, that it is usually preceded by pharyngitis, that the abdominal symptoms, early distention and constant pain and tenderness, are generalized and start from two to three days after the subsidence of the infection of the respiratory tract, and that the condition is definitely diagnosed by abdominal puncture, the gram-positive streptococci with pus cells being pathognomic. The treatment depends on the severity and stage of the illness, each case being a rule unto itself. The mortality, at its lowest, is 80 per cent. The frequent severe sepsis interdicts early operation, while the peritonitis is generalized. In the interim, a continuous intravenous drip of saline solution, repeated transfusion of blood and the injection of pooled antistreptococcus serums is indicated. Laparotomy is valueless and even dangerous when the sepsis is severe. However, when the general infection is not marked and there is evidence of much peritoneal fluid, improvement is often observed when drainage is obtained by the simplest and most rapid means. The large walled-off abscesses should be drained.

## Colorado Medicine, Denver

**33:** 667-736 (Oct.) 1936

Practicing Physicians and the Public Health Workers. W. W. Baner, Chicago.—p. 684.
*The Head-Low Position in Tonsillectomy. C. E. Earnest and H. S. Rusk, Pueblo.—p. 692.

**Head-Low Position in Tonsillectomy.**—Earnest and Rusk assert that the view obtained in the "head-low" position enhances complete removal of all tonsillar tissue, the least trauma to the tissues, the avoidance of bleeding and the prevention of complications. The result is a confident surgeon, not hurried or worried by the difficulties of the operation. The most satisfactory support of the head is one that remains parallel to the table in tilting, in which position the head and muscles are at rest, and there is no laryngeal obstruction if the support is so that the neck is straight and in line with the axis of the body. Both the anesthetist and the surgeon are seated at the head of the patient on rather low stools, the latter a little lower. The patient's face is turned up toward the anesthetist and surgeon at about 45 degrees. The operating table is raised as high as it will normally go, or is placed on 4 inch blocks, and is tilted about 15 or 20 degrees. To complete the essentials of this position, the authors have made a head rest that will fit any table. It is adjustable by a vertical worm screw and handle below, may be extended from the table for adults, and also moves laterally, following any movement the patient may make. Being adjustable, therefore, in three directions it is quite safe, and it is suitable also for bronchoscopic examinations. A Crowe-Davis mouth-gag is used.

## Indiana State Medical Assn. Journal, Indianapolis

**29:** 513-558 (Oct.) 1936

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Rectal Diseases Frequently Encountered in General Practice. H. H. Wheeler, Indianapolis.—p. 524.
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Survey of Puerperal Death Rate in Typical Indiana County. C. E. Canaday, Newcastle.—p. 533.

## Johns Hopkins Hospital Bulletin, Baltimore

**59:** 133-212 (Sept.) 1936

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Severe Myocarditis of Unknown Etiology. Helen B. Taussig and Ella H. Oppenheimer, Baltimore.—p. 155.

Mechanism of Hitherto Unexplainied Form of Native Immunity to Type III Pneumococcus. A. R. Rich and Clara M. McKee, Baltimore.—p. 171.

## Journal of Bone and Joint Surgery, Boston

**18:** 823-1136 (Oct.) 1936. Partial Index

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*Treatment of Surgical Tuberculosis by Vaseline Injections and Closed Plaster-of-Paris Bandages. V. Jeřábek, Prague, Czechoslovakia.—p. 851.

Treatment of Malum Coxae Senilis, Old Slipped Upper Femoral Epiphysis, Intrapelvic Protrusion of Acetabulum and Coxa Plana by Means of Acetabuloplasty. M. N. Smith-Petersen, Boston.—p. 869.

Localized Hypertrophic Changes in Cervical Spine with Compression of Spinal Cord or of Its Roots. S. A. Morton, Milwaukee.—p. 893.

Osteitis Condensans Ilii. R. A. Rendich and A. V. Shapiro, Brooklyn.—p. 899.

Effects of Hypercalcemia on Joints. H. C. Fang and L. J. Miltner, Peiping, China.—p. 909.

Fractures in Paget's Disease. M. H. Rogers and R. Ulin, Boston.—p. 914.

Tennis Elbow. J. H. Cyriax, London, England.—p. 921.

Bone Metabolism: Its Principles and Its Relations to Orthopedic Surgery. A. B. Gill and I. Stein, Philadelphia.—p. 941.

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New Use for Knickerbocker Tongs: Correction of Diastasis After Reduction of Rare Ankle Fracture (Maisonneuve-Cotton Type). E. R. Easton, New York.—p. 979.

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Fracture-Dislocation of Elbow with Ulnar-Nerve Involvement: Reduction by Tension on Superficial Flexor Group of Muscles. A. A. Schmier, Detroit.—p. 1030.

End Results of Fractures of Proximal Humeral Epiphysis. A. P. Aitken, Boston.—p. 1036.

End Results in 113 Cases of Septic Hips. C. E. Badgley, L. Yglesias, W. S. Perham and C. H. Snyder, Ann Arbor, Mich.—p. 1047.

*Dislocation of Elbow Reduced by Means of Traction in Four Directions. E. H. Crosby, Hartford, Conn.—p. 1077.

Locking of Hip Joint Due to Osteochondroma of Lesser Trochanter. D. Poverman, New York.—p. 1080.

**Treatment of Surgical Tuberculosis.**—Jeřábek considers the types of surgical tuberculosis that present grave obstacles to surgical intervention. To this group belong para-articular foci of tuberculosis. Operation is indicated in such cases only when the roentgenogram shows distinct signs of a circumscribed cavity. Sequestrums, especially the larger ones, have a tendency to spontaneous evacuation; only the smaller ones may be absorbed. That is why fistulas are often found near such a focus. In treating these and other complications, followers of conservative trends were satisfied by the application of a plaster-of-paris bandage with an aperture for the fistula, through which the dressings were changed. The author believes it necessary to eradicate foci even if secondary infection has taken place or if the abscess has not yet broken through, and that conservative treatment is too prolonged and too passive and does not prevent the possibility of eventual extension into the joint. He has the patient prepared in the customary manner and a wide operating surface is disinfected with tincture of iodine. If there are no fistulas, the foci are incised and eradicated. After removal of the diseased tissues, the cavity is tamponed with gauze moistened with physiologic solution of sodium chloride. After the hemorrhage has been stopped, the cavity is dried and filled with sterilized petrolatum. Suture of the skin is but partial, so that the secretion may drain away. If no fistula is present and there is only an abscess, it is opened and the cavity is scraped with a sharp spoon and filled with petrolatum. Petrolatum itself drains so efficiently that it can be used even in those cases in which the cavity has had a secondary infection. The use of petrolatum alone does not require redressing of the wound, since, in the process of healing, the petrolatum is forced out. Therefore the bone is entirely unmolested, which is desirable for healing. Filling the cavity with petrolatum is proper even if no fistulas are present. The principal reason for filling the cavity is to replace the defect with material similar to osseous tissue which, through osteoblastic activity, will supply the basis for a quicker compensation of the defect. The filling is supposed to restore the disturbed stability of bone and at the same time to act as a preventive to infectious agents in the cavity. Fillings that contain disinfecting materials represent foreign bodies which irritate and cause reactions that end in elimination. Petrolatum fillings keep the cavity from filling with blood, preventing the increase of microbes on favorable ground. Bone tissue bears petrolatum exceedingly well because of its neutrality and nonirritability.

**Dislocation of Elbow.**—Crosby feels that, regardless of the type of dislocation in an elbow, four-direction traction minimizes injury to the tissues around and in the joint, thereby reduces the amount of postreduction swelling and pain and shortens the period of convalescence. The patient is placed on a stretcher with a folded sheet around the chest. The sheet is then tied or pinned to a crossbar on the opposite side of the stretcher. This fixes the chest and gives countertraction. A 4-inch muslin bandage is placed around the arm above the elbow. This bandage is tied so that it forms a loop, the lower end of which is about 6 inches above the floor. The foot is placed in this loop for traction downward. A similar bandage is placed around the forearm with the elbow flexed at 90 degrees and is tied behind the operator. The patient's wrist is grasped with the operator's left hand, thus producing traction upward, and the operator's right hand is free to manipulate the elbow joint. The patient is anesthetized, and, when muscle relaxation has been reached, the operator gives traction in four directions by leaning backward, by pressing downward with the foot through the loop in the bandage, by pulling upward with the left hand, and with countertraction across the chest. The dislocation in the elbow joint is easily reduced with a minimum of injury to the joint.

## Journal of Experimental Medicine, New York

**64:** 503-672 (Oct. 1) 1936

High Speed Vacuum Centrifuge Suitable for Study of Filtrable Viruses. J. H. Bauer and E. G. Pickels, New York.—p. 503.

Phenomenon of Local Skin Reactivity to Bacterial Filtrates: Effect of Bacterial Filtrates Injected Intravascularly on Reactions to Antigen + Antibody Complexes. G. Shwartzman, New York.—p. 529.

Skin Test for Detecting Group C Hemolytic Streptococcic Infection Causing Epizootic Lymphadenitis in Guinea-Pigs: Applications in Selecting Breeding Stock. J. K. Moen, New York.—p. 553.

Specific Polysaccharides of Types I, II and III Pneumococcus: Revision of Methods and Data. M. Heidelberger, F. E. Kendall and H. W. Scherp, New York.—p. 559.

Hypersensitiveness and Antibody Formation in Tuberculous Rabbits. J. Freund, Elizabeth H. Laidlaw and J. S. Mansfield, New York.—p. 573.

Lipids and Immunologic Reactions: III. Lipid Content of Specific Precipitates from Type I Antipneumococcus Serums. F. L. Horsfall Jr. and K. Goodner, New York.—p. 583.

Spotted Fever: II. Experimental Study of Fièvre Boutonneuse. G. M. Hass and H. Pinkerton, Boston.—p. 601.

Studies on Sensitization of Animals with Simple Chemical Compounds: II. K. Landsteiner and J. Jacobs, New York.—p. 625.

Relation Between Antianaphylaxis and Antibody Balance: I. Rôle of Excess of Circulating Antibody in Hypersensitiveness. M. C. Morris, St. Louis.—p. 641.

Id.: II. Effect of Specific Desensitization on Resistance to Infection and on Antibody Balance. M. C. Morris, St. Louis.—p. 657.

## Journal of General Physiology, New York

**20:** 1-144 (Sept. 20) 1936

Growth and Respiration of Avena Coleoptile. J. Bonner, Pasadena, Calif.—p. 1.

Changes of Apparent Ionic Mobilities in Protoplasm: I. Effects of Guaiacol on Valonia. W. J. V. Osterhout, New York.—p. 13.

Pigments of Retina: II. Sea Robin, Sea Bass and Scup. G. Wald, Cambridge, Mass.—p. 45.

Color Vision of Dichromats: I. Wavelength Discrimination, Brightness Distribution and Color Mixture. S. Hecht and S. Shlaer, New York.—p. 57.

Id: II. Saturation as Basis for Wavelength Discrimination and Color Mixture. S. Hecht and S. Shlaer, New York.—p. 83.

Statistical Evaluation of Sieve Constants in Ultrafiltration. J. D. Ferry, Pacific Grove, Calif.—p. 95.

Electric Impedance of Injured and Sensitized Red Blood Corpuscles. H. J. Curtis, Cold Spring Harbor, Long Island, N. Y.—p. 105.

Analysis of Geotropic Orientation of Young Rats: X. W. J. Crozier and G. Pincus, Cambridge, Mass.—p. 111.

## Journal of Nutrition, Philadelphia

**12:** 223-328 (Sept. 10) 1936

Relation of Season, Sex and Weight to Basal Metabolism of Albino Rat. T. C. Sherwood, Lexington, Ky., and Madison, Wis.—p. 223.

Availability of Proteins and Inorganic Salts of Green Leaf. M. K. Horwitt, G. R. Cowgill and L. B. Mendel, New Haven, Conn.—p. 237.

Availability of Carbohydrates and Fats of Green Leaf Together with Some Observations on Crude Fiber. M. K. Horwitt, G. R. Cowgill and L. B. Mendel, New Haven, Conn.—p. 255.

Effect of Cystine and Casein Supplements on Nutritive Value of Protein of Raw and Heated Soy Beans. J. W. Hayward, H. Steenbock and G. Bohstedt, Madison, Wis.—p. 275.

Losses of Vitamin C During Cooking of Peas. Faith Fenton, D. K. Tressler and C. G. King, Ithaca, N. Y., and Pittsburgh.—p. 285.

Relation of Vitamin G to Hatchability of Hens' Eggs. R. M. Bethke, P. R. Record and D. C. Kennard, Wooster, Ohio.—p. 297.

Effect of Ration of Hen on Vitamin G Content of Eggs, with Observations on Distribution of Vitamin B and G in Normal Eggs. R. M. Bethke, P. R. Record and F. W. Wilder, Wooster, Ohio.—p. 309.

Effect of Polyneuritis in Chicks on In Vivo Rate of Removal of Pyruvate Injected Intravenously. W. C. Sherman and C. A. Elvehjem, Madison, Wis.—p. 321.

## Medical Annals of District of Columbia, Washington

**5:** 255-286 (Sept.) 1936

Psychotherapy in General Practice. E. Klein, Washington.—p. 255.

Psychoanalytic Remarks on Clinical Significance of Hostility. Frieda Fromm-Reichmann, Rockville, Md.—p. 260.

*Sporadic Outbreak of Neonatal Pneumonia with Accompanying Skin Lesions Due to Staphylococcus Albus-Haemolyticus. C. B. Conklin, Washington.—p. 264.

William Cline Borden (1858-1934). D. L. Borden, Washington.—p. 269.

Fundamentals of Internal Medicine: Diseases of Nervous System. A. Schneider, Washington.—p. 276.

**Neonatal Pneumonia Due to Staphylococcus Albus-Haemolyticus.**—Conklin calls attention to an epidemic, in the nursery of an obstetric department of a general hospital, that was characterized by pustular skin lesions with fulminating respiratory infections. Multiple abscesses in the lungs of eleven fatal cases were found with the presence of Staphylococcus albus-haemolyticus. An organism obtained from one of the patients was injected into an animal in which quite typical lung lesions were found later. The presence of pustular skin lesions followed by respiratory involvement suggests that the mode of conveyance of the organism was through the blood channels to the lung and not by droplet infection. Widely fluctuating temperature reaching as high as 106 F. aided materially in the spread of infection. Publicity through the reporting of nursery infections when they occur cannot fail to bring rewards in the building of barriers against further spread and repetitions. The Dick aseptic nursery technic should be widely known and employed. It may be of importance to have nurseries adjacent to the obstetric department under the care of a pediatrician; eliminating the presence of the various obstetricians would numerically reduce the possible avenues of infection.

## Medical Bull. of Veterans' Adm., Washington, D. C.

**13:** 111-200 (Oct.) 1936

Identity of Myocarditis. L. G. Beardsley.—p. 111.

Heart in Bronchial Asthma: Report of Nine Cases in Which Bronchial Asthma Was Cause of Death. W. A. Colton and T. Ziskin.—p. 117.

Therapy in Cancer: Practical Considerations. J. J. Stein.—p. 130.

Adhesive Pericarditis as Protection in Multiple Cardiac Infarction. B. H. Schlomovitz.—p. 135.

Diphtheria Immunization with One Dose (Alum-Precipitated) Toxoid Schick Test with Park 8 and "Gravis" Toxin. C. P. Brown and S. Etris.—p. 140.

Cardiovascular Disease Complicating Neurosyphilis Among Negro Veterans. T. T. Tildon.—p. 144.

Clinical and Radiologic Study of Associated Cardiovascular Disease in General Paralysis. B. A. Moxness.—p. 153.

Residuals of "Jake Leg Paralysis." W. M. Bevis.—p. 157.

Ground Parole or Freedom Therapy. M. K. Amdur.—p. 161.

## Military Surgeon, Washington, D. C.

**79:** 251-340 (Oct.) 1936

The Medical and Hospital Service of the Veterans' Administration. C. M. Griffith.—p. 251.

Medical Aspects of First Army Maneuvers at Pine Camp, N. Y., August 1935. J. W. Grissinger.—p. 267.

Orr Treatment of Compound Fractures and the Fracture Problem in Time of War. J. B. Mason.—p. 279.

Extra-Ocular Manifestations of Eyestrain. R. K. Simpson.—p. 287.

Vertical Drainage. H. J. Banton.—p. 291.

Proposed Solution of the Problem of the Nontransportable Wounded. J. S. Deane.—p. 293.

Improved Mess Kit Laundry. M. P. Rudolph.—p. 296.

Experiences of Senior Medical Officer on Transport During the World War. T. J. Burrage.—p. 301.

## New England Journal of Medicine, Boston

**215:** 605-646 (Oct. 1) 1936

Coronary Arteriosclerosis in Diabetes Mellitus. H. F. Root, Boston, and T. P. Sharkey, Dayton, Ohio.—p. 605.

*Congenital Dislocation of Hip: End-Result Study with Suggestions for Improved Treatment. G. W. Van Gorder, Boston.—p. 613.

Caffeine Intoxication: Report of Case the Symptoms of Which Amounted to Psychosis. Margaret C. McManamy and P. G. Schube, Dorchester Center, Mass.—p. 616.

Reversion of Cardiac Enlargement in Four-Year-Old Child Following Treatment for Avitaminosis. L. Rabinowitz and E. J. Rogers, Pittsford, Vt.—p. 621.

Study of 400 Juvenile Delinquents (Statistical Report). W. B. Osgood, Dorchester Center, Mass., and C. E. Trapp, Boston.—p. 623.

**Congenital Dislocation of Hip.**—Van Gorder presents the experiences of the orthopedic staff of the Massachusetts General Hospital with congenital dislocation of the hip. During ten years there were fifty-eight cases, representing seventy-three dislocated hips. Of these, only forty-six patients, comprising fifty-five hips, could be followed to the end result. The treatment of these cases consisted in closed reductions, open reductions, open reductions with shelves and shelf operations alone, depending on the nature of the case. Traction of the Hoke type or by Kirschner wire has been used both before and after reduction in about one half of the open reduction cases. As a rule, closed reduction has been reserved for children less than 5 years of age unless special contraindications were apparent. Open reductions have been performed in children more than 5 years of age and in younger children when the closed method had failed. In the series of open reductions, a shelf operation was added only in those cases that exhibited an incompetent acetabulum. "Shelf operations alone" were performed in adults and in those children whose hips obviously could not be reduced without great trauma. In such instances the femoral head was allowed to remain in the false acetabulum. Following closed reduction, it has been the custom to immobilize the hip in its most secure position of reduction for a period of about six months and then gradually, in successive stages, to allow the leg to assume its normal anatomic position, the entire period of plaster retention not exceeding from nine to ten months. The period of fixation in plaster should be much shorter after open reduction than after the closed method, the immobilization period being regulated according to the needs of the individual case. Of the sixteen closed reductions ten hips showed excellent (perfect clinical result) end results, four hips were classified as good (slight limp but excellent clinical result) results and two hips showed a fair (definite restriction of motion) result. Of the fifteen open reductions only one hip was rated as an excellent result, three hips were rated good, five hips fair and four hips poor (small range of motion), and two hips resulted in bony ankylosis. Of the eight hips that were treated by open reduction and a shelf, no single case has been recorded as an excellent end result. Two hips showed good end results and one hip a fair result, two hips were rated as poor and three resulted in bony ankylosis. Of the sixteen hips that were treated by a shelf operation alone no cases were considered excellent, but eight hips were recorded as good end results, four were considered fair and four had poor end results. In summary, good functional results were obtained in 88 per cent of the closed reductions, in 27 per cent of the open reductions, in 25 per cent of the "open reductions plus shelves" and in 50 per cent of the cases having shelf stabilizations alone.

## New Jersey Medical Society Journal, Trenton

**33:** 493-550 (Sept.) 1936

Management of Toxemias of Pregnancy. J. F. Norton and J. N. Connell, Jersey City.—p. 499.

Liver Deaths. J. A. Visconti, Hoboken.—p. 502.

Chronic Endocervicitis and Treatment by Electrocoagulation. S. G. Fine, Trenton.—p. 507.

Medical Complications of Diabetes Mellitus. I. M. Rabinowitch, Montreal.—p. 510.

Surgery and Diabetes Mellitus. L. S. McKittrick, Boston.—p. 523.

*Syndrome Resembling Angina Pectoris. F. H. von Hofe, East Orange, and L. A. Eigen, West Orange.—p. 535.

The Field Physician in Maternal Welfare in New Jersey. A. W. Bingham, East Orange.—p. 538.

**Syndrome Resembling Angina Pectoris.**—A case of paroxysmal cardiac pain, somewhat resembling angina pectoris, is reported by von Hofe and Eigen in a girl 8 years of age, in

whom the chief subjective symptom was the attack of anginoid pain. The pain was always associated with a period of syncope and accompanied by various vasomotor phenomenon (sweating, flushing, blanching of face). She has thus far had numerous attacks. The patient has a chronic rheumatic heart disease. In practically all the reported cases there is a severe degree of chronic rheumatic heart disease. The patient has been under constant observation for two and one-half years. During this entire period the physical observations and roentgenologic studies of the heart, as well as the electrocardiographic examinations, showed no evidence of any appreciable change in her cardiac status. She has had quite a number of "seizures" of varying intensity occurring at varying intervals, some of which were precipitated by emotional excitement and others by a moderate degree of physical exertion. At times there was no evident precipitating factor (the attack occurring while she was asleep). During the patient's stay in the hospital, it was suggested that hypoglycemia should be considered a possible cause for the patient's symptoms. Increasing quantities of insulin were given, 5, 8, 12, 15 and 18 units, and in no instance was an attack precipitated.

## New York State Journal of Medicine, New York

**36:** 1363-1472 (Oct. 1) 1936

Menopause: Symptoms, Hormone Status and Treatment. R. T. Frank, M. A. Goldberger and U. J. Salmon, New York.—p. 1363.
Sources of Grafts for Plastic Surgery About the Eyes. J. M. Wheeler, New York.—p. 1372.
Silicosis: Pathology of Pneumoconioses. L. U. Gardner, Saranac Lake.—p. 1377.
*Id.: Differential Diagnosis of Silicosis from Other Pulmonary Diseases. G. G. Ornstein, New York.—p. 1382.
Id.: Clinical Features and Industrial Significance of Silicosis. A. J. Lanza, New York.—p. 1386.
Study of Ball Technic of Roentgen Pelvicephalography. F. J. Schoeneck, L. Hadley and A. VanNess, Syracuse.—p. 1389.
Simple Milk Mixtures in Feeding of Premature Infants. A. Tow, New York.—p. 1394.
Place of Surgery in Therapy of Peptic Ulcer. U. Maes and Elizabeth M. McFetridge, New Orleans.—p. 1399.
Diagnosis and Treatment of Peripheral Vascular Disease by Physical Agents. W. Bierman, New York.—p. 1405.
*Renal Function Following Trauma of Kidney: Clinical and Experimental Study. J. H. Powers, Cooperstown.—p. 1411.
Malignant Melanotic Tumors in the Negro: Case Report. R. E. Herold, Willard.—p. 1418.
Between Mental Health and Mental Disease. B. Liber, New York.—p. 1421.

**Differential Diagnosis of Silicosis.**—Ornstein states that the diagnosis of silicosis should not be made unless there is a definite history of exposure to silica dust. An overseer of a group of street excavators made claim for compensation because of a pulmonary tuberculosis complicating silicosis. There was no question with regard to the diagnosis of pulmonary tuberculosis. The difficulty arose with the diagnosis of the silicosis. There was bilateral upper lobe cavitation with a bronchogenic seeding down both lungs. The diffuse bilateral bronchogenic tuberculosis was interpreted by a group of physicians as silicosis. With a history of short duration of exposure and very little chance for concentration as would occur in the open streets, the diagnosis of silicosis should have been discarded. Furthermore, in reviewing the serial roentgenogram it was noted that the maximal intensity of the bronchogenic seeding was in the first roentgenogram. From then on, the serial roentgenogram revealed a slow resolution of the diseased areas. Resolution does not occur in silicotic nodules. The nodule in silicosis either remains stationary or progresses. Whenever there is evidence of pulmonary fibrosis, one must obtain a detailed history of previous occupation. A clerk in charge of the pay roll of a gang of rock drillers was roentgenographed. He never had been exposed to silica dust. A roentgenogram of his chest was interpreted as advanced silicosis. He did have spasms of coughing and expectoration, and he became alarmed because of the diagnosis of silicosis. On examination it was found that he had fibrosis in both lower lungs secondary to nasal instillation of as much as an ounce of liquid petrolatum a day. When there is sufficient occupational history, the roentgenogram becomes the most important examination for the diagnosis of pulmonary silicosis. In the early stages of silicosis, the root and bronchial accentuation can be easily simulated by bacterial infections or by other irritants. In advanced stages of silicosis there is great difficulty in ruling out tuberculosis. The confusion comes from the dense areas for which various investigators have used the term "infective silicosis." In fifty-nine cases collected at the Metropolitan Hospital a diagnosis of pulmonary tuberculosis was made, and the patients were transferred without a suspicion of an occupational disease. In this group of fifty-nine patients the diagnosis in thirteen was far-advanced pulmonary tuberculosis with sputums negative for tubercle bacilli. It is this type of case that causes so much confusion with regard to the association of tuberculosis and silicosis and is usually labeled silicotuberculosis. This group cannot be classified as clinical tuberculosis, with sputum negative for tubercle bacilli, any more than one could label other patients with fibrotic tissue in the lung and with negative sputums as tuberculous.

**Renal Function Following Trauma of Kidney.**—Powers believes that the intelligent treatment of patients with traumatic lesions of the kidney depends on a knowledge of the degree of function which the organ may be expected to regain when healing is complete. There is an occasional case in which the damage is so extensive and the hemorrhage so severe that immediate operation, preceded by transfusion and other supportive measures, is a necessity. The majority of patients, however, do not require such radical and heroic treatment. Hemorrhage from the kidney, pain, tenderness and spasm may persist for days and be followed by rapid and complete restoration of renal function. Two clinical cases of renal trauma, one moderate and one severe, have been reported. The ability of the injured kidney to excrete phenolsulfonphthalein and the pyelographic appearance of the renal pelvis promptly returned to normal in the first case. In the second instance the recovery was less rapid but equally satisfactory. Experimental observations have been submitted which demonstrate the prompt return of normal function following renal trauma of moderate severity in rabbits with only one kidney. Severe and extensive injury after unilateral nephrectomy is followed by death. Severe trauma of one kidney, if the opposite organ is intact, produces no significant change in total renal function, measured by the fractional and total excretion of phenolsulfonphthalein and the nonprotein nitrogen of the blood. If the normal kidney is removed after the critical, immediate posttraumatic period is over, the injured organ will recover sufficient function to maintain renal activity at a normal level. The clinical reports and experimental data suggest that the majority of patients with unilateral renal trauma may be treated conservatively with the expectation that the injured kidney will recover sufficient function to be a useful and serviceable organ.

## Oklahoma State Medical Assn. Journal, McAlester

**29:** 347-382 (Oct.) 1936

Choice of Surgical Procedure in Peptic Ulcer. M. E. Stout, Oklahoma City.—p. 347.
Mimics of Gastro-Intestinal Disease. M. F. Jacobs, Oklahoma City.—p. 351.
Intestinal Parasites in Children of Tulsa and Vicinity. C. E. Bradley and Rowena Johnson, Tulsa.—p. 355.
Factors of Safety in Gallbladder Surgery. C. C. Hoke, Tulsa.—p. 358.
Study of Etiology and Diagnosis of Peptic Ulcer. F. M. Duffy, Enid.—p. 362.

## Pennsylvania Medical Journal, Harrisburg

**39:** 943-1098 (Sept.) 1936

Screen Test and Its Modifications: Screen Parallax, Screen Maddox Rod and Screen Comitance. J. W. White, New York.—p. 943.
Inflammatory Pseudotumor of Orbit. W. E. Fry, Philadelphia.—p. 945.
Hazards Encountered in Gold Therapy: Report of Two Cases. A. I. Rubenstone, Philadelphia.—p. 948.
Rôle of Psychiatry in Penitentiary: Study of 200 Psychotic Prisoners. C. C. Wholey, Pittsburgh.—p. 952.
*Bacterial Toxemia: Symptoms Simulating Systemic Diseases; Diagnosis; Treatment. M. Solis-Cohen, Philadelphia.—p. 958.
Calculus Formation in Fracture and Traumatic Group. E. J. McCague, Pittsburgh.—p. 963.
Perforated Gastric and Duodenal Ulcer. R. L. Schaeffer, Allentown.—p. 967.
One-Hour, Two-Dose Glucose Tolerance Test (Exton and Rose). H. T. Kelly, Philadelphia.—p. 972.
Congenital Ectodermal Defect: Case Report. J. D. Stevenson, Beaver.—p. 976.

**Bacterial Toxemia.**—Solis-Cohen asserts that toxins elaborated by the bacteria in a focus of infection may, without producing pathologic changes, give rise to symptoms similar to those occurring in organic disease. The symptoms simulate

those present in disease of the circulatory, gastro-intestinal, nervous, locomotor, lower respiratory and other systems, leading on the one hand to the diagnosis of systemic disease and on the other to a diagnosis of neurasthenia, hypochondriasis, and the like. Examination fails to confirm the suspicion of organic disease suggested by the symptoms but discloses focal infection. Every possible focus of infection must be examined bacteriologically by a method of culture that not only discloses all the germs present but, in addition, determines their infectivity for their host. Such a method is the pathogen-selective method, which in chronic and focal infection selects the causal organism from a mixed culture. It is necessary to distinguish between symptoms due to bacterial toxemia and those due to systemic disease, psychic disturbances, nonbacterial allergy, endocrine dysfunction and lack of vitamins. Treatment consists in the complete removal of the focus of infection, which includes the destruction of the infecting bacteria and the rendering innocuous of their toxic products through the artificial stimulation of specific antibody production. The latter is accomplished by the administration of a potent vaccine, such as the pathogen-selective vaccine, which contains both the infecting microbes and their soluble exotoxins. The initial dose of pathogen-selective vaccine depends on the result of graduated intracutaneous tests. Subsequent doses are based on the general, focal and local reactions to the preceding dose. The interval is determined by the character of the reaction to the last dose.

## Philippine Islands Med. Association Journal, Manila

**16:** 535-602 (Sept.) 1936

*Neurologic Disturbances in Pregnancy and Their Relation to Calcium and Phosphorus Balance in Blood. B. Roxas, J. R. Katigbak and J. Leyva, Manila.—p. 535.

Typhoid Fever in Children. A. V. Tupas and F. N. Quintos, Manila. —p. 545.

Teratoma of Ovary with Malignant Metastasis in Childhood. F. W. Meyer, Capiz, Capiz.—p. 555.

Study on Resistance of Metacercariae of Monorchotrema Taihokui to Different Physical Chemical Agents. E. Y. Garcia, Manila.—p. 561.

Chemotherapy of Malaria. S. P. James, London, England.—p. 567.

**Neurologic Disturbances in Pregnancy.**—In their investigation of seventy-eight cases of pregnancy, Roxas and his associates observed hypocalcemia associated with neurologic disorders in fifty-eight. The symptoms presented were paresthesia, cramps, muscular twitchings, local edema, chest oppression, backache, brittleness of the nails, dental caries, thinning of the hair and muscular weakness. That abnormal symptoms are caused by hypocalcemia has been borne out by several observers. The probable interpretation is that there is an initial disturbance in the calcium and phosphorus balance, so that nervous symptoms begin to appear even before actual hypocalcemia exists. Then, if there is further disturbance, the calcium begins to fall and the train of symptoms makes its appearance. This disturbance is due either to a diminution of calcium or vitamin D supply or to a parathyroid insufficiency; and, from the behavior of the phosphorus, it seems that the parathyroids are also at fault, just as is the country's diet. The association of beriberi and pregnancy is another question of importance to the clinician. The result of the authors' analysis of six cases shows that in beriberi the range of calcium is normal. A further study of seventeen cases of beriberi in the nonpregnant state was conducted and the result was likewise a normal curve for the calcium concentration. If this observation is borne out in further studies, a differentiation of the two conditions in pregnancy may be aided by laboratory examinations. Other conditions which gave similar symptoms were a case of pulmonary tuberculosis and one of cardiac failure. The occurrence of neurologic disturbances in a pregnant woman should put the clinician on his guard. Avitaminosis is a treacherous enemy of such a patient. The symptoms may be so slight and unapparent as to be overlooked, only to manifest themselves disastrously after delivery. Patients who gave no symptoms or history indicative of beriberi went through a normal delivery and twenty-four hours later were found with bilateral paralysis of the legs or with footdrop and handdrop. Such patients may or may not recover. Routine calcium therapy of an antepartum case in the absence of a real indication may do more harm than good. Undue calcium administration to the expectant mother often causes serious complications during labor. The head of the fetus fails to mold, probably because of premature calcification; labor becomes unduly prolonged and, oftentimes, must be terminated by cesarean section.

## Psychoanalytic Quarterly, Albany, N. Y.

**5:** 303-464 (July) 1936

On Projection. D. Feigenbaum, New York.—p. 303.

Ego Development and Certain Character Problems. I. Hendrick, Boston. —p. 320.

Euthanasia: Clinical Study. F. Deutsch, Boston.—p. 347.

Exceptions to Fundamental Rule. R. Laforgue, Paris, France.—p. 369.

An Abnormal Child. Editha Sterba, Vienna, Austria.—p. 375.

Inhibitions, Symptoms and Anxiety. S. Freud.—p. 415.

## Public Health Reports, Washington, D. C.

**51:** 1363-1398 (Oct. 2) 1936

*Resistance of Various Strains of Escherichia Typhi and Coli-Aerogenes to Chlorine and Chloramine. Lucy S. Heathman, G. O. Pierce and P. Kabler.—p. 1367.

**51:** 1399-1428 (Oct. 9) 1936

Influenza Mortality in the United States, 1936. Mary Gover.—p. 1399.

Audiometric Studies on School Children: I. Consistency and Significance of Tests Made with a 4-A Audiometer. A. Ciocco.—p. 1402.

**Resistance of Escherichia Typhi and Coli-Aerogenes to Chlorine.**—Heathman and her co-workers found that the disinfecting action of chlorine in treated waters is variable within limits. The time required for chloramine and for chlorine in some instances to kill strains of Escherichia typhosa and members of the coli-aerogenes group is appreciably greater at low temperatures than at room temperature. There is considerable variation in the resistances of freshly isolated strains of Escherichia typhosa and of members of the coli-aerogenes group to the disinfecting action of chlorine and chloramine. Certain recently isolated strains of Escherichia typhosa exhibit a greater resistance to the disinfecting action of chlorine and chloramine than do old laboratory strains that have been grown on artificial mediums for a number of years. There is a possibility of viable Escherichia typhosa persisting in waters treated with chlorine or chloramine as long as, and in some instances longer than, members of the coli-aerogenes group. These results indicate the desirability of reconsidering the significance of the coli-aerogenes group as a bacteriologic index of the safety of chlorinated water.

## Review of Gastroenterology, New York

**3:** 205-290 (Sept.) 1936

Recent Studies on Physiology of Human Intestine: Their Application to Clinical Problems. J. A. Bargen and C. F. Dixon, Rochester, Minn. —p. 205.

Correlation of Clinical and Gastroscopic Findings in Chronic Gastritis: Report of Cases. W. A. Swalm, C. L. Jackson and L. Morrison, Philadelphia.—p. 219.

Treatment of Gastric and Duodenal Ulcer. E. Rosenthal, Budapest, Hungary.—p. 227.

Intestinal Tuberculosis. R. J. Erickson, Albany, N. Y.—p. 238.

Diseases of Rectum. W. Zweig, Vienna, Austria.—p. 251.

Use of Insulin in Gastro-Intestinal Disturbances. H. Baker, Boston.—p. 258.

## Rhode Island Medical Journal, Providence

**19:** 131-150 (Sept.) 1936

*Low Back Pain. J. G. Kuhns, Boston.—p. 131.

**Low Back Pain.**—Kuhns discusses the accumulated data on low back pain, from which he concludes that backache manifests itself as either local or symptomatic pain. Local pain is due to injury or disease of the spine and pelvis, or their supporting structures. Of injuries, sprains of the muscles, ligaments or fascia are most common, with faulty posture frequently acting as a predisposing cause. Of diseases of the spine, rheumatoid arthritis and osteo-arthritis are most common. In symptomatic backache the cause is usually a disease or functional disturbance in the abdominal or pelvic viscera, the pain being transferred to the cutaneous area of the nerve branches that supply the viscus affected. The differential diagnosis is often tedious. It must be determined whether the pain is local or referred. In referred pain, pain alone is present. Muscle spasm, tenderness and limitation of motion in the lower part of the back are indications of a lesion in that portion of the spine or its contiguous structures. Several diseases may be active at the

same time in producing low back pain. This not unlikely possibility requires that a careful physical examination be performed as well as a systematic examination of the spine and its accompanying neurologic structures, with such roentgenograms and laboratory data as may be indicated in each case. Treatment must be comprehensive. One must remember that the patient is an individual with a visceral, neurologic or spinal lesion. The patient's fears and worries as well as his adjustments to difficulties must be considered. Nothing should be left undone that will add to his health and hasten recovery. Treatment should be sufficiently long, in the realization that the processes of repair usually take place slowly, and all factors that may aid in preventing a recurrence of low back pain should be considered.

## Southwestern Medicine, Phoenix, Ariz.

**20:** 325-366 (Sept.) 1936

Public Health Notes: Amebic Dysentery. J. R. Earp, Santa Fe, N. M.—p. 325.
Gastric and Duodenal Ulcer: Medical Consideration. J. J. Gorman, El Paso, Texas.—p. 325.
Allergic Diseases Occurring with Tuberculosis. R. A. Wilson, Tucson, Ariz.—p. 331.
Pulmonary Complications in Atrophic Arthritis: Report of Two Cases. C. L. Dunham, Tucson, Ariz.—p. 333.
Malignant Melanoma: Course and Treatment. O. N. Meland and L. Lindberg, Los Angeles.—p. 336.
Surgical Treatment of Arthritic Joints. E. D. McBride, Oklahoma City.—p. 346.
*Prevention of Chronic Sinusitis. Rea E. Ashley, San Francisco.—p. 349.
Bacterial and Allergic Factors in Common Colds. O. H. Brown, Phoenix, Ariz.—p. 353.
Medical Annals of Arizona: Health Among the Navajos. S. J. Tillim, Amityville, N. Y.—p. 355.

**Prevention of Chronic Sinusitis.**—In the main, Ashley believes that the predisposing causes of chronic sinusitis can be placed in four general groups: physiologic effects, malformation of the structural framework of the nose, allergic tendencies and infections. By physiologic effects she refers to unbalanced diet, glandular distrophies, metabolic fluctuations, excessive use of alcohol and tobacco, swimming and diving, bad ventilation, lack of sunshine and generally poor living conditions. Under malformations must be included hypertrophied tonsils and adenoids, deviated and malformed septums, enlarged turbinates, traumatic abnormalities, obstructing tumors and atresias. Allergy is an important etiologic factor in chronic sinusitis. There is a definite reason for the seemingly great increase of allergic children; namely, the substitution of various formulas all using the cow, the goat or the donkey instead of the mother for the source of food supply in infancy. There is little doubt that allergy and sinus disease frequently do go hand in hand, and, whenever this condition does exist, any treatment of one without treating the other will surely fail; and one must be particularly on guard against too active surgical treatment without the counsel of the allergist. Inflammations of the sinuses are practically all of bacterial origin; irritation caused by trauma without superimposed infection is transient. The common cold is the most frequently given etiologic factor in chronic sinusitis. Every acute head infection is potentially a chronic sinus infection. The general management of a patient suffering with a cold should be with the internist or the pediatrician, but the local treatment certainly should be left to the rhinologist. The author is of the opinion that all colds in their primary stage are allergic manifestations, that the allergy develops because of a filtrable virus made active by the failure of the body to accommodate itself to unfavorable climatic and environmental changes, that the purulent stage is due entirely to secondary invaders, and that any serious complications are due to these secondary invaders.

## Wisconsin Medical Journal, Madison

**35:** 769-852 (Oct.) 1936

Brain Tumors in Wisconsin. J. C. McCarter and M. Burke, Madison.—p. 790.
Biologic Relationship Between Erysipelas and Scarlet Fever. M. J. Fox, Milwaukee.—p. 797.
Stone in Ureter: Methods of Diagnosis and Transvesical Removal. G. J. Thompson, Rochester, Minn.—p. 802.
Id.: Operative Treatment. H. Cabot, Rochester, Minn.—p. 805.
Postpartum Malignant Neutropenia and Purpura with Recovery. F. A. Thayer and R. A. Thayer, Beloit.—p. 810.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Urology, London

**8:** 205-318 (Sept.) 1936

Urinary Calculus, with Especial Reference to Stone in Bladder. H. Lett.—p. 205.
*Blood Stream Infections of Kidney. H. Cabot.—p. 233.
Trigonal Loop Traction in Suprapubic Prostatectomy: New Technic. N. Lumb.—p. 257.

**Blood Stream Infections of Kidney.**—Cabot considers blood-borne infections of the kidney and chiefly those caused by the pus-producing cocci. Various of these cocci may be found in otherwise normal urine of patients with peripheral infections, such as boils, carbuncles, septic wounds and acute infections of the upper part of the respiratory tract. To investigate the latter point more closely, forty-six patients with acute inflammatory processes about the mouth, throat and ear were studied. The group was selected from patients who had a urine normal to ordinary tests and who had some fever but no signs or symptoms suggesting an infection of the kidney. The urine was studied by smear and culture, the smear being made from urine centrifugated for a considerable period at high speed. Of these forty-six cases, thirty-two showed organisms in the smear and eighteen in the culture. A group of ten control cases, of persons apparently normal, showed a negative smear in all. In two there was a positive culture showing streptococci. The pus-producing cocci appear in the urine early in the disease; they disappear as a rule in a few days, though occasionally persisting for several weeks in an otherwise normal urine. The lesions are primarily cortical and medullary. They tend to coalesce with the production of massive abscess, usually show early and marked perinephritis, and often go on to perinephric abscess. Besides the classic methods of diagnosis, stress is laid on the value of roentgenography in the diagnosis of these cases. Clouding or obliteration of the shadow of the psoas muscle is generally discoverable in perinephric abscess by modern methods. Scoliosis is not rare but is a rather late sign. Limitation of the motion of the diaphragm on the infected side as studied by the fluoroscope is more important than the literature would suggest. Pyelography both by the excretory and the retrograde method is of extreme value. This will give precise information as to the development of massive abscess by showing deformities of the calices. It will also be of much value in showing displacement of the kidney by perinephric abscess, sometimes at an early period. Stress is laid on the value of limitation of the normal mobility of the kidney due to the early development of perinephritis, often in the absence of perinephric abscess. Observations are reported, showing diminished visualization of the infected kidney as seen in the excretory urogram. Indications for operation are the fulminating type of infection; the widespread infection of the kidney in which the patient seems unable to control the disease, as shown by the development of anemia and failing general conditions; massive abscess of the kidney as shown by the pyelogram, and perinephric abscess. Nephrectomy is indicated in the fulminating cases, nephrectomy for widespread infection, but without massive abscess when the patient is losing ground, decapsulation and drainage for cases with well localized massive abscess, and exploration for perinephric abscess. If the pyelogram shows no evidence of massive abscess or evidence of deformity of the pelvis, simple drainage is indicated; if there is perinephric abscess and evidence of massive abscess, the abscess must be drained and the kidney explored in the region indicated by the pyelogram, and, for perinephric abscess of long standing, drainage of the abscess alone is indicated in the first instance.

## British Medical Journal, London

**2:** 611-656 (Sept. 26) 1936

Nutrition in Health and Disease. R. McCarrison.—p. 611.
Acute Streptococcic Infections of Middle Ear. W. M. Mollison.—p. 615.
Acute Streptococcic Infections of Throat. E. D. D. Davis.—p. 617.
Hemolytic Streptococcus, with Especial Reference to Scarlet Fever. D. Brewer.—p. 620.
*Traumatic Edema: Pitfall in Physical Medicine. L. C. Hill.—p. 623.

**Traumatic Edema.**—Hill says that the circulatory, lymphatic and sympathetic nervous systems are involved in the production of traumatic edema. The breakdown of the normal

mechanism of fluid interchange is maintained by abnormal impulses from the higher sympathetic centers by way of the long reflexes, and these in their turn depend on irritating afferent stimuli from the damaged tissues, now distended with lymph. The intense bony atrophy may be due to a state of chronic venous congestion, the obstruction to the venous return following extreme distention of the part with lymph. The operation of sympathectomy, which by dilating the vessels might be expected to aggravate the situation, actually produces its beneficial effect by suppressing the long reflexes from the higher sympathetic centers. It is probable that immobilization combined with elevation, by relieving tension and promoting complete muscular and ligamentary relaxation, may modify the afferent impulses to the sympathetic ganglions. Thus a gradual toning down of the abnormal efferent influences responsible for the maintenance of the edema takes place. The successful performance of a sympathectomy probably effects its cure by a similar action. In an established case early immobilization with elevation and complete rest will not only greatly curtail the period of incapacity but prevent the resultant fibrosis. The application of physical therapy at any period other than in the late stages is unjustifiable.

## Journal of Tropical Medicine and Hygiene, London

**39:** 197-208 (Sept. 1) 1936

Immunity in Malaria: Therapeutic Results Obtained from Subcutaneous Infection of Immunized Blood. N. Lorando and D. Sotiriades.—p. 197.
Culex, a New Vector of Spirochaeta Gallinarum. Margarete Zuelzer.—p. 204.

**39:** 209-220 (Sept. 15) 1936

Diseases of Skin in Negroes. L. J. A. Loewenthal.—p. 209.
Duration of Treatment for Bilharziasis. F. G. Cawston.—p. 212.

## Lancet, London

**2:** 723-774 (Sept. 26) 1936

Development of Thoracic Surgery. F. Sauerbruch.—p. 723.
*Histidine Treatment of Peptic Ulcer. H. C. Barry and H. W. Florey.—p. 728.
*Id.: Study of 126 Cases with Immediate and Later Results. E. Bulmer.—p. 734.
Tissue Response to Subcutaneous Injection of Cod Liver Oil. J. Davson.—p. 737.
Vitamin A in Local Treatment of Wounds. S. Sándor.—p. 738.
Human Infection with American Hog-Cholera Bacillus: Third Example in England. J. Boycott and J. W. McNee.—p. 741.
Observations on Myotonia. W. R. Russell and E. Stedman.—p. 742.
Corneal Graft in an Aphakic Eye. B. W. Rycroft and E. J. Somerset.—p. 743.

**The Histidine Treatment of Peptic Ulcer.**—Barry and Florey endeavored to test Aron's theory by experiments on cats and pigs, using the operation of experimental Meckel's diverticulum devised by Matthews and Dragstedt as a basis on which to test the efficacy of histidine. There is no interference with digestion in this operation. To examine more critically the value claimed for histidine, some of a series of cats operated on in this way were left untouched and others were given daily injections of histidine. The treated cats were each given 0.5 cc. of a 2 per cent solution of histidine monohydrochloride subcutaneously. The injections were begun on the third day following operation and continued daily till the death of the animal. Of twenty-two cats not treated with histidine, twelve died early (four from hemorrhage, three from peritonitis, two from snuffles and three from unknown causes). Nine animals lived twenty days or more after operation and developed peptic ulcers, all in the ileac loop opposite the anastomosis into the pouch. Microscopic examinations of four ulcers showed that they resembled in every way a typical chronic peptic ulcer. Of the thirty-four animals treated with histidine, twenty-five died early. The other nine lived eighteen days or more and five died from hemorrhage or peritonitis. The combined results of the experiments on pigs and cats show that histidine was incapable of preventing ulcer formation when this was caused by the action of unneutralized gastric juice on intestinal mucosa. A review of the clinical use of histidine demonstrates the difficulty in judging the therapeutic value of any drug used in treating peptic ulcer. Despite the favorable reports that have been reviewed, there is still no proof that histidine has any specific action on peptic ulcer.

**Results of Histidine Treatment of Peptic Ulcer.**—Since February 1934, Bulmer has given daily intramuscular injections of twenty-one doses (5 cc.) of histidine to 126 patients who presented themselves at the outpatient department suffering from gastric or duodenal ulcers. A follow up was made of ninety-two patients who had been rendered symptom free, and eighty-two were traced, from which it seems obvious that ambulatory treatment with histidine has as good an effect as ambulatory treatment with a diet-alkali regimen. Both hematemesis and perforation have occurred during treatment. Only one third of the patients remained symptom free after an average period of sixteen months. Deep, callous ulcers on the lesser curvature have not been influenced favorably; some have apparently healed, as evidenced by freedom from symptoms and a normal roentgenogram, but relapse has been frequent with reappearance of the ulcer crater. While these cases are not common, some are successfully treated by radical surgical procedures, but in others technical difficulties make this impossible and they remain an unsolved problem. The author's conclusion is that histidine should be used not as an alternative but as an adjunct to the usual methods of diet and alkali, so that the patient may have the known advantages of the latter with the addition of the probable advantages of the former. It is best to order a simple diet with "feeds" between meals, with alkali or antacid, to insist on reasonable after-treatment and to repeat the injections should a relapse threaten. The treatment should be reserved for simple, uncomplicated ulcers, for patients with ulcers of the stomach and for those in whose case the usual methods have failed. Ambulatory treatment under these conditions appears to be safe and effective, and there do not seem to be any toxic incidents, as none were encountered in more than 3,000 injections.

## Medical Journal of Australia, Sydney

**2:** 283-314 (Aug. 29) 1936

Loss of Consciousness Due to Circulatory Causes. A. S. Walker.—p. 283.
Radiology and Heart Disease: The Medical Aspect. K. Maddox.—p. 290.
Radiology in Relation to Heart Disease. K. B. Voss.—p. 296.

**2:** 315-346 (Sept. 5) 1936

Loss of Consciousness of Primary Neurogenic Origin. A. S. Walker.—p. 315.
Observations on Physical Signs in Diseases of Chest. C. H. Fitts.—p. 321.
*Early Diagnosis and Treatment of Intracranial Injuries of the New-Born. R. H. Nattrass.—p. 326.
Massive Pulmonary Embolism. J. B. Cleland.—p. 329.

**Intracranial Injuries of the New-Born.**—Nattrass declares that many infants who survive have intracranial injuries. The greater number will have no more than small hemorrhages and small tears of the tentorium cerebelli or edema of the adjacent parts. But others may survive with extensive intracranial injuries; and he has seen infants who have survived for eight days in whom postmortem examination revealed an old hemorrhage as big as a fist and extensive damage of the dural septums. In those who survive, the clinical signs and symptoms are neither uniform nor characteristic. They are usually present at or soon after delivery; but occasionally the symptoms do not appear for three or four days, because bleeding continues slowly for the first few days and the accumulation of blood eventually becomes great enough to produce signs or symptoms. The infant is usually born in a condition of asphyxia, generally of the pallid type, and is often difficult to resuscitate. If respiration is established, it may be noticed in the next few days that the respirations are slow and irregular, and there are often attacks of cyanosis. Often the child is noticed to have convulsions, neck rigidity, perhaps unequal pupils, and strabismus or nystagmus. A most important point is that the sucking reflex is often impaired. In the majority of cases of intracranial injury, hemorrhages both of the infratentorial and of the supratentorial types occur, so that it is not usually possible to decide where the hemorrhage is likely to be. The most important thing is that, as long as the obstetrician thoroughly appreciates his responsibility for the early recognition of the injuries and carefully observes the new-born infant immediately after birth and during the first few days, he will probably not miss the infant's suffering from these injuries and so will be able to carry on with treatment immediately. To confirm one's sus-

picions, lumbar puncture not only determines the diagnosis but is of definite therapeutic value; for as the result of the relief of the increased intracranial pressure by lumbar puncture, the danger of later impairments can be lessened and even avoided. Practically the only treatment in the resuscitation of the newborn is to remove any mucus from the throat by means of a mucus catheter and to encourage attempts at respiration by gentle traction on the tongue with tongue forceps at the rate of about twenty pulls per minute, together with the injection of a cardiorespiratory stimulant. Should the infant attempt to breathe, carbon dioxide may be of some value. If the infant does not respond to this gentle treatment within a minute or two he must be considered as having potential brain injuries, and small hemorrhages may soon prove fatal if vigorous manipulations are resorted to. While the tongue manipulations are being carried out, the infant should be left in a warm bath or in warm blankets. If the infant with injuries responds to this treatment, it should then be placed in a warm cot, preferably in a darkened room. It should not be put to the breast until all apparent danger is over but should be fed by bottle, or by pipet if the sucking reflex is impaired. Attacks of cyanosis may be treated by the use of oxygen and carbon dioxide.

## South African Medical Journal, Cape Town

**10:** 597-624 (Sept. 12) 1936

Pentothal Sodium in Anesthetics. C. W. H. van der Post.—p. 599.
Evipan Sodium in Country Work. J. J. de Villiers.—p. 601.
*Is Sympathectomy Justified by Its Results? R. S. Verster.—p. 603.
Dyspepsia of Nonorganic Origin. P. Leftwich.—p. 605.
Posttyphoid Suppurative Osteitis. W. Campbell and E. C. Greenfield.—p. 607.
Destruction of Bilharzia Parasites of Man. F. G. Cawston.—p. 608.

**Is Sympathectomy Justified?**—Verster believes that sympathectomy should be resorted to only when all the conservative methods have failed. It is useless to expect any result by performing lumbar ganglionectomy, e. g., in chronic constipation, because such good results are obtained in Hirschsprung's disease. From the "sympathetic" point of view these diseases are totally different and sympathectomy must not be expected to perform miracles. When the choice has been correctly made a preoperative test should always be performed first, with operation only in cases showing a rise of skin temperature above 5 degrees. In causalgia these tests have no value, and every other possible cause must be excluded for this condition. Sympathectomy is at most only a symptomatic treatment and not a cure. In relieving the vasoconstriction, the progredient calcification in the larger vessels or the obliterative arteritis is not cured. Advantage can be derived from ganglionectomy or sympathetic block carried out before or immediately after operations or injuries that involve obstruction or threatened obstruction to large arteries of the extremities. Only when these principles are adhered to may one expect some consistency in the results and thus establish sympathectomy on a surer basis whereby it may regain much of the credit it has lost in the past.

## Journal of Oriental Med., Dairen, South Manchuria

**25:** 1-32 (July) 1936

Lobus Electricus and Nervi Electrici in Narke Japonica. N. Suzuki.—p. 1.
Innervation of Salivary Glands in Hedgehogs. H. Seto and U. Fukuyama.—p. 13.
Examination on Innervation of Human Gum, with Especial Regard to Morphology of Nerve Terminations in Normal and Pathologic Conditions, Supported by Tests on Experimental Animals: Part III. Experimental Tests on Animals. T. Hosaka.—p. 15.
Experimental Research on Changes in the Sensory Nerve Endings of the Gums in Poisoning by Ergot. T. Hosaka.—p. 17.
Arteries of the Thighs of the Chinese. K. Miyashita.—p. 18.
Accessory Nasal Sinuses in the Chinese: I. Maxillary Sinus. N. Toida.—p. 21.
Contribution to the Knowledge of the Cranium of Chinese Children. H. Sakai.—p. 23.
The Lower Jaw of Chinese Children: III. Communication. H. Sakai.—p. 24.
Morphologic Studies of Muscles of Ear of the Chinese. S. Takeya.—p. 25.
Anthropologic Studies on Chinese Miners in Fuschun. S. Takeya.—p. 27.
Contribution to the Knowledge of the Dental Arch of the Chinese. N. Hada.—p. 31.
Morphologic Studies on the Dental Arch. S. Ohshima.—p. 32.

## Archives Franco-Belges de Chirurgie, Brussels

**35:** 209-296 (March) 1935-1936

Diverticular Sigmoiditis. P. Hillemand and J. Charrier.—p. 215.
Primary Tuberculosis of Uterus. P. Tison and C. Dazin.—p. 230.
Morquio's Disease and Familial Dystrophic Ligamental Hyperlaxities. G. Giraud and J. M. Bert.—p. 246.
Complete Evipan Anesthesia (Sodium Salt of N-Methyl-Cyclo-Hexenyl-Methyl Barbituric Acid). J. Gautier.—p. 256.
Fractures of Calcaneum. Hamant and L. Grimault.—p. 265.
*Subarachnoid Air Injections in Epilepsy. Y. Delagenière.—p. 271.
Integral Statistics of Operations Performed in Mans During the Years 1931, 1932 and 1933. Y. Delagenière.—p. 278.

**Air Injections in Epilepsy.**—Delagenière discusses four cases of epilepsy in which air injections were given by the lumbar route. In two instances the aim was therapeutic, and in two diagnostic only. In three cases the generalized attacks of known or unknown traumatic origin completely ceased after the injection and in two of these disappeared permanently. In discussing these observations, the author states that it seems that in jacksonian epilepsy the attacks can be favorably influenced by the injection of air into the subarachnoid spaces, while in essential epilepsy attacks cannot be influenced in any lasting fashion. He cannot advance a satisfactory hypothesis to explain these results. Nevertheless, the innocuousness and simplicity of the treatment deserve recognition and further study.

## Gynécologie et Obstétrique, Paris

**34:** 177-256 (Sept.) 1936

"Aigrette" of the New-Born. Fruhinsholz and Hartemann.—p. 177.
*Tuberculosis of Uterine Body of Hemorrhagic Form. N.-C. Lapeyre and H.-L. Guibert.—p. 182.
*Ascension of Trichomonas Vaginalis. E. Hees.—p. 191.
Trichomonas Vaginalis in Leukorrheas. G. Tempé.—p. 201.
Thoracoplasty and Pregnancy. A.-I. Blisnjanskaja and A.-I. Lasarevitch.—p. 207.

**Tuberculosis of Uterine Body.**—Lapeyre and Guibert report a case of tuberculosis of the body of the uterus. The principal symptom of the patient, who was 36 years of age, was uterine bleeding for about one year. The first diagnosis was fibroma, and treatment by roentgen rays was proposed. Later, hysterography revealed the existence of a congenital malformation giving the uterine cavity a bicornate aspect and showing an irregular lacunar defect of the mucosa. Subtotal hysterectomy was later performed. The histopathologic analysis of the uterus and tubes showed the presence of giant cells and caseous tubercles. Miliary infiltration of the uterine muscle with true infarction by tuberculous granulation was seen. The case reported was of considerable interest from the standpoint of diagnosis and of the use of x-rays in the diagnosis. The authors believe that tuberculosis of the uterine body is not as rare as is often considered.

**Ascension of Trichomonas Vaginalis.**—Hees discusses the part played by Trichomonas in inflammatory lesions about the vagina. In one patient the anemia, loss of weight and abundant menstruations were due to Trichomonas invasion. Eventually a chronic purulent salpingitis was produced. When Trichomonas reaches the upper portions of the genital tract, it never causes temperatures above 39 C. Generally the temperature oscillates between 38 and 38.5 C. for several days and thereafter returns to normal or below. The author concludes from his study of this case and of others that it is possible to demonstrate Trichomonas vaginalis microscopically in ovarian cysts, chronically inflamed tubes, the placenta, the peritoneum, the endometrium, the blood, the male spermatic fluid and the internal organs of the embryo. Trichomonas is as common as the gonococcus and its specific ability to produce local and general tissue injury is far from negligible. Initially, Trichomonas involves only the vagina, but it frequently causes ascending disorders, characterized in various ways. It is impossible to deny its toxic effect on the central nervous system and the general state of the patient. As a rule, however, it may be completely cured.

## Presse Médicale, Paris

**44:** 1481-1496 (Sept. 23) 1936

New Technic of Autoclave Sterilization of Surgical Material. A. Gosset and P. Hauduroy.—p. 1481.
Ear and Parathyroid. A. Malherbe.—p. 1484.
*Treatment of Recurrent Suppurative Sinusitis. N. Taptas.—p. 1486.

**Treatment of Recurrent Suppurative Sinusitis.**—Taptas discusses the various operative procedures for treatment of frontal sinusitis. He proposes a modification of technic which

embodies essentially the creation of a frontomaxillary opening followed by resection of the fronto-ethmoidal cells and the opening of the sphenoidal sinus. Because of the radical nature of this procedure, he discusses the indications for operation. In general, all the steps of the operation should be performed only when more conservative treatment has failed to prevent recurrence.

**44:** 1497-1520 (Sept. 26) 1936

*Local Immunity of Intestine. A. Besredka.—p. 1497.
Reactivation of Gonococcus Reaction for Etiologic Diagnosis of Rheumatisms. F. Coste, R. Demanche and P. de Charmant.—p. 1499.
Positional Treatment in Course of Artificial Pneumothorax. J.-P. Lelong and E. Peyret.—p. 1502.

**Local Immunity of Intestine.**—Besredka discusses the nature of immunity. From the standpoint of experimental studies on local immunity, he believes that the mouse is too small and the monkey too expensive to serve as adequate experimental animals. In most of his tests, therefore, the rabbit has been used, and the intestinal resistance decreased by the use of bile. In this way it is possible to use the rabbit in testing the effectiveness of oral vaccination with typhoid, paratyphoid bacilli and others. Experiments of this nature added to a considerable list of epidemiologic statistics indicate that local vaccination of the intestine, which aims at the specific reinforcement of natural local immunity, is based on as solid ground as is vaccination by subcutaneous means. Even though oral vaccination in man still has some disadvantages compared with subcutaneous vaccinations, it also offers the advantage of localized tissue immunity over the latter.

## Schweizerische medizinische Wochenschrift, Basel

**66:** 1001-1024 (Oct. 17) 1936

Hormone Relationship Between Mother and Child. H. Guggisberg.—p. 1001.
Bony Changes and Blood Diseases in Childhood. Péhu.—p. 1007.
Histophysiologic Consideration of Relation of Bone Disease to Blood Diseases. M. Péhu and A. Policard.—p. 1011.
*Practical Value of Serum Diagnosis in Gonorrhea. F. Schaaf and W. Burckhardt.—p. 1011.
Clinical Studies of Addison's Disease. F. Mainzer.—p. 1014.

**Practical Value of Serum Diagnosis in Gonorrhea.**—Schaaf and Burckhardt's clinical experience with the complement deviation test in gonorrhea convinced them that a positive reaction may be obtained in a certain percentage of both uncomplicated and complicated cases of gonorrhea. A certain parallelism appeared to exist between the strength of the reaction and the clinical course in the cases of gonorrheal complications but not in the uncomplicated cases. However, even in the former there were cases in which there was found a great divergence between the clinical course and the degree of retardation of the hemolysis. The authors are at a loss to explain this discrepancy as well as the fact that in some instances they had obtained a negative complement absorption test in the presence of gonococci, or a positive test in their absence. Serologic test for gonorrhea is indicated in arthritis of uncertain origin and in adnexitis, epididymitis and prostatitis in which there is a suspicion of gonorrheal etiology. The reaction is of less value in cases of urethritis of indefinite etiology, cervicitis or proctitis. It is well to remember in this connection that the gonorrheal complement deviation reaction makes its appearance not infrequently from two to five weeks after the acute onset of the complication and under certain conditions may become once more negative after a few days or weeks. The test therefore must be performed at the proper time and frequently repeated. A negative reaction does not rule out gonorrhea. The reaction in some cases may be positive for only a short time. The cure of genital gonorrhea cannot be determined by a negative test in view of the discrepancy between it and the finding of the gonococci in the genital secretions. A positive reaction is a strong argument in favor of the gonorrheal nature of the condition. The microscopic search for gonococci, however, must not be omitted. A positive gonorrheal complement deviation test in the absence of gonococci is merely suggestive and assumes a decisive value when considered along with a characteristic history and clinical symptoms. The test is of no value in patients treated with gonorrheal vaccine, since a single injection of it may produce a positive deviation. The authors conclude that the gonorrheal complement deviation reaction is helpful in diagnosing obscure cases of gonorrheal complications when considered in conjunction with the clinical signs and bacteriologic study.

## Pensiero Medico, Milan

**25:** 253-280 (Sept.) 1936

Treatment of Gangrenous Abscess of Lung. E. Moretti.—p 253.
*New Syndrome from Industrial Poisoning. C. Bellesini.—p. 269.

**New Syndrome from Industrial Poisoning.**—Bellesini reports industrial poisoning from percutaneous absorption of diphenylarsinic acid. The syndrome consists in development of fever, papulous erythema, especially on the uncovered skin (face, hands and arms) and intense nervous symptoms. The symptoms regress slowly after discontinuation of work or may be so intense as to cause death. One of the victims, in a group of four patients treated by the author, died. The author emphasizes the importance of protecting workers against the acid by frequent washing of the floors and cleansing of the utensils and by giving the personnel protective dresses, gloves, shoes and masks. The author's article is a preliminary report.

## Policlinico, Rome

**43:** 479-534 (Oct. 15) 1936. Surgical Section

*Thiemia in Surgical Diseases. U. Bracci.—p. 479.
Transplantation of Ureter into Bladder: Further Experiments. D. Ciddio.—p. 506.
Mens Agitat Molem: Study on Pathogenesis of Peptic Ulcer. B. Schiassi.—p. 514.

**Thiemia in Surgical Diseases.**—The average amount of normal thiemia found by Bracci is 36.4 mg. per thousand cubic centimeters of blood. A fraction of 24 per cent of the total amount of sulfur in the blood is neutral sulfur, which is the most important and constant fraction. Thiemia increases in surgical diseases, especially in peritonitis. The variations include the several fractions of total sulfur, especially neutral sulfur. The changes result in a diminution of the coefficient of oxidation with parallel increase of the neutral sulfur-total sulfur ratio. The changes of thiemia in renal and liver diseases depend on the preservation of the functions of the kidney and the liver. The variations of the neutral sulfur-total sulfur ratio are an index of the functions of the liver. A high ratio, indicating a quantity of more than 40 per cent of neutral sulfur in the blood, shows grave alterations of the liver functions and an unfavorable prognosis. The small amount of thiemia found by the authors in surgical spleen diseases conflicts with the opinions in the literature, according to which the spleen seems to be concerned with the production of neutral sulfur. Total sulfur and the neutral sulfur fraction greatly increase in diseases associated with skin pigmentation. The increase seems to be due to latent adrenal insufficiency. Thiemia changes after operations. The changes depend on the intensity of trauma, the type of anesthesia used and the performance of an operation on organs that are concerned in controlling the sulfur metabolism or normal thiemia. Operations are generally followed by a diminution of the acid sulfur fraction and an increase of the neutral and total sulfur with resultant increase of the neutral total sulfur ratio. The changes are due to augmented autolysis of traumatized tissues, decreased functions of the organs concerned with the elimination of sulfur, especially the liver, effects of general anesthesia and the postoperative fasting. Operations on the liver or biliary tract by which the functions of the structures are restored bring immediately a high neutral sulfur-total sulfur ratio down to normal. Following splenectomy, ligation of the splenic artery and lumbosacral sympathectomy, the total sulfur and the acid sulfur fraction increase and the neutral sulfur fraction and the neutral sulfur-total sulfur ratio diminish. Following blood transfusion the total sulfur, its acid and neutral fractions and the neutral sulfur-total sulfur ratio increase. Intense increase of the ratio is followed by development of a serious general reaction, which is due to plasmatic colloid disturbances.

## Riforma Medica, Naples

**52:** 1337-1368 (Oct. 3) 1936

Chronic Appendicitis and Pseudo-Appendicitis. G. Cavina.—p. 1339.
*Relations Between Gastric Chemism and Erythropoiesis. E. Lombardi and J. A. Cino.—p. 1343.

**Gastric Chemism and Erythropoiesis.**—Lombardi and Cino state that there is a relation of interdependence between the gastric chemism and erythropoiesis, as proved by the development of anemia following gastrectomy, the increased erythrocytosis in patients suffering from hyperchlorhydria and

gastroduodenal ulcer, and the presence of hyperchlorhydria in patients suffering from erythremia. They studied the behavior of erythropoiesis in relation to the modifications of the gastric acidity, induced in man by intravenous injections of sodium benzoate and in dogs by intravenous injections of sodium benzoate or subcutaneous injections of histamine hydrochloride. The intravenous injections of sodium benzoate induce in both human beings and dogs a simultaneous diminution of the erythrocytes and of the total acidity and free hydrochloric acid in the gastric secretion. The subcutaneous injections of histamine hydrochloride in dogs have the same results. The variations in the number of erythrocytes do not depend on an uneven distribution of the erythrocytes in the blood of the peripheral and visceral vascular territories, as is proved by the fact that the number of erythrocytes in the blood from the ear and from the heart of dogs in the authors' experiments was almost the same. The authors conclude that the variations of the gastric chemism induce parallel variations of the erythropoiesis and they admit the existence of the so-called achylous anemia and hyperchylous erythremia.

## Rivista Ospedal. Giorn. di Med. e Chir., Rome

**26:** 409-468 (Aug.) 1936

Vascular Insufficiency of Extremities: Pathogenesis and Treatment. G. Barbera.—p. 409.
Systematic Examination of Right Iliac Fossa in Chronic Appendicitis. E. Giupponi.—p. 443.
*New Method for Preventing Postoperative Complications in Prostatectomy. P. Blasucci.—p. 448.

**Preventing Postoperative Complications of Prostatectomy.**—Blasucci states that most of the grave complications following prostatectomy are caused by sepsis. He prevents development of the latter by means of a postoperative procedure, which he describes as follows: A thick rubber tube is introduced in a pear-shaped Hagner bag at its base. Immediately after enucleation of the prostate a Nelaton catheter is introduced into the urethra. (The catheter is previously perforated with small holes through its entire length to allow irrigation of the urethra.) The tip of the Nelaton catheter is drawn out through the hypogastric wound and fixed to the apex of the pear-shaped Hagner bag. Traction is then applied to the Nelaton catheter at the urethra so that the Hagner bag enters the bladder and fits snugly in the cavity left by removal of the prostate. The bag is inflated through the rubber tube, which comes out at the hypogastric wound according to the intensity of hemorrhage. If the latter is not controlled, slight traction is made on the Nelaton catheter in the urethra so that the bag fits more closely into the cavity left by removal of the prostate. After the hemorrhage has stopped for a few hours the traction of the Nelaton catheter is released and the cannula of a Dakin drip is connected to the free end of the Nelaton catheter to allow the diluted solution of sodium hypochlorite to flow in drop by drop. In this manner the prostatic cavity is continuously irrigated and sterilized by the antiseptic solution, which then flows into the bladder and out through the suprapubic drain. Generally the patients do not like the procedure, but the results are satisfactory. The postoperative evolution is uneventful and none of the grave (sometimes even fatal) complications of prostatectomy set in. Since the procedure has been carried on by the author, sepsis has been less frequent in his cases and the time necessary for the patient to recover has been shorter than previously.

## Prensa Médica Argentina, Buenos Aires

**23:** 2361-2406 (Oct. 14) 1936

Friedreich Disease as Syndrome: Case. J. Pereyra Kafer.—p. 2361.
Anatomohistologic Study of Appendixes of Infants Obtained in Necropsies. Teresa Malamud.—p. 2375.
Chronic Purpura and Biliary Lithiasis: Case. R. Gernich, J. M. Palazon.—p. 2390.
*Alkali Reserve in Depressive Psychoses. Paulina H. de Rabinovich.—p. 2393.

**Alkali Reserve in Depressive Psychoses.**—According to de Rabinovich, anxiety and depression are psychoneuroses originated in alkalosis which depends on rupture of the acid base balance due to sympathetic disturbances. She determined the alkali reserve in thirty-five patients suffering from psychoses, especially of the melancholic and anxiety types. In all cases there was alkalosis, which was more intense in cases of melancholy with anxiety. The author believes that her results support the theory of the pathogenic rôle of alkalosis in depressive and anxiety psychoses and points out the advisability of administering acidifying drugs and a diet aiming to control alkalosis. According to the literature (Laignel-Lavastine), the antialkalotic treatment gives promising results in controlling the mentioned forms of psychoses.

## Revista Médica Latino-Americana, Buenos Aires

**21:** 1229-1342 (Aug.) 1936

Present State of Knowledge on Vitamins: General Review. P. Labignette.—p. 1229.
Nervous System in Diseases of Sugar Metabolism. A. Dias.—p. 1239.
Subacute Diffuse Glomerulonephritis of Extracapillary Form: Case. H. Chabanier and C. Lobo Onell.—p. 1250.
Surgical Therapy of Ozena. A. Alcaino.—p. 1263.
*Cysts of Mesentery. C. Lugones and D. A. Molina.—p. 1282.

**Cysts of Mesentery.**—Lugones and Molina made a study of congenital cysts of the mesentery with especial reference to those of a lymphatic origin (serous and chylous cysts). They state that the early symptoms of congenital cysts of the mesentery are the increased size of the abdomen and the appearance of gastric disturbances, abdominal pain and a round, smooth, mobile tumor at the periumbilical region. As a rule, the condition follows a benign evolution, unless the tumor is too large or adhesions are formed. In such cases grave disturbances, especially dependent on compression of the organs and vessels, set in. In cases of gastro-intestinal disturbances of long duration the nutritional disturbances of the patient result in cachexia. The treatment is surgical. It consists in the removal of the cyst with the involved segment of the intestine. The author reports three cases of congenital cysts of the mesentery (dermoid in one case and serous cysts in two others). Two of the cases were in children. In one of the cases the tumor recurred sometime after the operation. From observations in their cases and from a review of the literature on the subject, the authors modified Donati's classification of congenital cysts of the mesentery by including in the group serous and chylic mesenteric cysts. The form and histologic nature of the cysts and the physiologic and anatomic relation between chyle and lymph prove that both types of cysts are of congenital lymphatic origin. According to the authors, congenital cysts of the mesentery are in a latent condition, owing to a special predisposition of the mesentery. The development of the cysts depends on the action of certain unknown determining factors by which the latent condition is stimulated first to evolute into the cyst formation and then to continue its growing.

## Semana Médica, Buenos Aires

**43:** 1033-1104 (Oct. 15) 1936. Partial Index

Esophago-gastroscopy: Heyrowsky's Operation. R. C. Ferrari and O. A. Itoiz.—p. 1033.
Renal Amyloid Lipoidosis and Amyloid Sclerosis: Case. T. Martini and M. Litter.—p. 1046.
*Exophthalmic Goiter and Hemorrhagic Thrombocytopenic Purpura. R. Finochietto, E. B. del Castillo and A. S. Parodi.—p. 1059.
Ulcer of Duodenum: Resection and Exclusion. G. H. Dickmann and J. L. Curutchet.—p. 1062.
Electrocardiographic Curve in Case of Myocardial Infarct. J. Espejo Solá.—p. 1073.
*Methylene Blue in Treatment of Psoriasis. M. D'Agostino and E. Torres.—p. 1080.

**Exophthalmic Goiter and Hemorrhagic Thrombocytopenic Purpura.**—Finochietto and his collaborators report a case of exophthalmic goiter associated with hemorrhagic thrombocytopenic purpura. The development of the latter preceded that of the former. The patient was treated by a subtotal thyroidectomy and has practically recovered from hyperthyroidism. The satisfactory results persist after a year and a half. The purpura improved from both the clinical and hematic points of view. Thrombocytopenia persists (30,000 platelets). According to the authors, their case proves that purpura is of idiopathic origin and not secondary to hyperthyroidism. In the authors' case the two diseases have a common origin; that is, both originate in a pathologic condition of the bone marrow.

**Methylene Blue in Treatment of Psoriasis.**—D'Agostino and Torres report satisfactory results in treating psoriasis with intravenous injections of a 2 per cent solution of methylene

blue in double distilled water, a diet poor in proteins and fats but rich in vitamins, and local application of Brocq's ointment. The renal functions of the patient are previously determined, because the treatment is to be administered to persons with good renal functions or grave renal complications may set in. The injections are given slowly in doses of 5 cc. of the solution for the first one, 7 cc. for the second and 10 cc. for the remainder. They are given three times a week up to fifteen or twenty injections. The ointment, which is locally applied, consists of 1 Gm. each of chrysophanic, salicylic and pyrogallic acids, 10 Gm. each of ichthammol, tar and hydrous wool fat and 30 Gm. of petrolatum. The tolerance of the skin to the ointment is previously tested by applying it to a small area. The ointment is not to be applied to the scalp. For the latter, as well as in cases of sensitive skin, the ointment can be replaced by local applications of cade oil or any ointment containing salicylic acid. With these precautions the treatment is not dangerous. So far the authors have treated seven patients. There was recovery in two cases, improvement in four cases and failure in one case. However, the time elapsed since discontinuation of the treatment has not been long enough to assure them that no recurrences will take place.

## Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

**103:** 1-124 (Aug.) 1936. Partial Index

Treatment of Postpartum Hemorrhages, with Especial Consideration of Henkel's Method. Herold.—p. 1.
Amputation of Pregnant Uterus. G. von Bud.—p. 8.
*Familial Occurrence of Uterine Myoma. H. Winkler.—p. 11.
*Ulcerative Colitis and Pregnancy. M. Saegesser.—p. 14.
Fatalities from Cesarean Operations. Hüssy.—p. 16.
*Pathogenesis of Acute Hydramnion. G. Gaehtgens.—p. 40.

**Familial Occurrence of Uterine Myoma.**—Winkler points out that, in view of the high incidence of uterine myomas, it is difficult to furnish definite proof for a hereditary transmission of this condition. Nevertheless, he decided to investigate the problem on the material passing through his clinic. He encountered considerable difficulties in that most of the women knew little about the disorders of their blood relations and the idea of tumor of the uterus is extremely indefinite in lay circles. However, he observed three sisters who required treatment for uterine myoma and they stated that their mother likewise had had a benign uterine tumor. Although at the time of operation the sisters were 37, 42 and 44 years of age, there were indications, such as repeated abortions, which indicated that uterine myomas existed long before surgical treatment was resorted to. The author further mentions a number of other investigators who have observed the familial occurrence of uterine myomas. The cases of the three sisters are important also because all three had symptoms that are characteristic for exophthalmic goiter. The search for corroborating evidence of a causal connection between myoma and goiter failed. Moreover, most patients with myoma have characteristics that incriminate hypothyroidism rather than hyperthyroidism. Consequently, the author suggests that the disturbance in the thyroid function and myoma formation are coordinated symptoms of a superimposed ovarian function. In this connection, he cites Hofmiller, who in a large necropsy material of women with myoma observed that 51 per cent had changes in the thyroid and 30 per cent had changes in the ovaries. He thinks that this furnishes an explanation of the vasolability of most women with uterine myoma, for it is well known that dysfunction of the thyroid leads to cardiac and vascular disturbances.

**Ulcerative Colitis and Pregnancy.**—Saegesser points out that diarrheal conditions, which have a causal connection with pregnancy, have been described by Seitz and by Condi. He himself observed two women who, in the course of pregnancy, developed ulcerative colitis. After describing the histories of these patients, he admits that the concurrence of the ulcerative colitis with pregnancy may be accidental. However, the fact that the bacteriologic examination was negative excludes an infectious cause and in the second case, particularly, there was evidence that the pregnancy had some etiologic significance, for the woman developed colitic conditions in her three pregnancies, and her intestinal function was normal again each time after the colitis had healed. The author thinks that the persistence of the symptoms of colitis beyond the puerperal period does not necessarily exclude a causal relationship with the pregnancy, because ulcerative colitis causes anatomic changes, which frequently prove extremely refractory. The author points out that the etiology of ulcerative colitis is not yet completely explained but that a sympathetic hyperirritability is often regarded as a factor. Moreover, such a condition may readily become aggravated by pregnancy. The author suggests that the differences between the cases of colitis reported by Seitz and Condi and his two cases of ulcerative colitis are probably only a matter of degree of severity.

**Pathogenesis of Acute Hydramnion.**—Gaehtgens says that the pathogenesis of hydramnion has been ascribed to various factors. Observations have proved that this anomaly of the amniotic fluid may develop in several systemic diseases of the maternal organism, such as diabetes, syphilis and renal and cardiac disorders. Acute hydramnion has been observed also after local trauma. In most, if not in all cases, twin pregnancies were involved in the cases in which a trauma preceded the development of the hydramnion. Thus it suggested itself that the peculiar circulatory conditions of such pregnancies were responsible for the development of an acute hydramnion. The author describes the histories of two cases and in the discussion stresses once more the high incidence of cases of hydramnion in twin pregnancies. Both described cases likewise involved twin pregnancies. He emphasizes that the acute hydramnion of twin pregnancies develops as the result of the cardiac decompensation of the stronger of the two twins. But although it may be said in general that stasis in the fetal circulation is responsible for an excessive production of amniotic fluid, it is not necessarily a cardiac decompensation that forms the basis of this stasis. The anamnesis of the second case reported by the author indicates the importance of a traumatic influence.

## Münchener medizinische Wochenschrift, Munich

**83:** 1255-1294 (July 31) 1936. Partial Index

Problems of Insulin Therapy. E. Grafe.—p. 1255.
Morbidity and Mortality in Diabetes. E. Fürth.—p. 1259.
Traumatic Diabetes. R. Herbst.—p. 1262.
So-Called Water Disease. H. Hornung.—p. 1264.
*Cutaneous Cancer After Chemical Treatment of Corn. A. W. Busse.—p. 1269.
Ureteral Calculus and Appendicitis, Differential Diagnostic Observation. P. Dietz.—p. 1269.
*New Rapid Method for Early Diagnosis of Pregnancy. G. de Nito.—p. 1272.

**Cutaneous Cancer After Chemical Treatment of Corn.**—Busse cites a case in which a cutaneous cancer developed on the small toe of a man following the treatment of a corn with chemical substances. The toe was removed by exarticulation and the histologic examination of the tumor disclosed a cornifying squamous cell carcinoma. It remained doubtful whether the neoplasm was the cancerous degeneration of the corn or a cutaneous carcinoma that was elicited by chemical influences. At the time of discharge, the scar showed no sign of irritation, but there were slightly enlarged inguinal glands. Renewed examination of the patient after nine months for possible metastases revealed no changes on the foot but the inguinal glands were still palpable.

**Another Method for Early Diagnosis of Pregnancy.**—The pregnancy test suggested by de Nito is based on the fact that the intravenous injection of pregnancy urine results in changes in the number of leukocytes in the test animal. The author makes the test on rabbits. He determines the leukocyte number in the rabbit and then injects intravenously from 5 to 10 cc. of the urine that is to be examined. After from two to four minutes has passed, he again counts the number of leukocytes. If the injected urine is from a pregnant woman, a considerable reduction in the number of leukocytes is observable, whereas there are only insignificant changes if the woman is not pregnant. The phenomenon of the reduction in leukocytes was observable in all phases of pregnancy, even the early ones, so that the test is suited for the early diagnosis of pregnancy. The author performed this test in about 100 cases and obtained correct results in 90 per cent of them. He also investigated why pregnancy urine reduces the leukocytes and he calls attention to the considerable increase of blood pressure reducing substances in the urine of pregnant women and also to Abderhalden's hypothesis of the so-called protective ferments.

## Zentralblatt für Gynäkologie, Leipzig

**60:** 2049-2112 (Aug. 29) 1936

Esthiomene of Vulva as Result of Fourth Venereal Disease. H. O. Kleine.—p. 2050.
Experiences in Combating Cancer. J. Beaufays.—p. 2056.
Possibility of Error in Roentgenologic Diagnosis of Fracture of Humerus in the New-Born. F. A. Wahl.—p. 2061.
*Treatment of Menstrual Disturbances with Diathermy of Uterine Mucosa. B. S. ten Berge.—p. 2066.
Fever and Menstrual Cycle. E. Menninger-Lerchenthal.—p. 2072.
*Is There a Period of Physiologic Sterility in Women? R. Araya.—p. 2074.
Twelve Years' Experience with Tubal Insufflation by Means of Own Apparatus. R. Budimlić.—p. 2084.

**Diathermy of Uterine Mucosa in Menstrual Disturbances.**—Five years ago ten Berge started to treat uterine hemorrhages by applying diathermy to the uterine mucosa. He uses a bean-shaped button attached to an insulated rod as the pole that is introduced into the uterus. The heat of this pole rises to 50 or 60 C. The patient lies in the lithotomy position on the indifferent pole. The vulva and the vagina are cleansed and the cervix dilated to Hegar No. 6. The rod-shaped pole is introduced into the uterine cavity so that the insulated rod lies in the cervical canal. Then the current is closed and its strength is stepped up to 0.75 ampere. Now the pole is moved back and forth along the uterine wall. The duration of this treatment is two minutes. Care must be taken that the internal os is not touched for, if it is, there is danger of stenosis. Stenoses and obliterations are impossible in the uterine cavity, because only the upper layer of the mucosa is coagulated and a considerable layer of mucosa is preserved. After the treatment is over, the pole is not removed from the uterus until it has cooled. In some patients a paracervical anesthesia is required. However, in the majority of women the pain is not sufficient to require an anesthetic. The patients are kept in bed for one or two days after the treatment. The author employed this treatment in seventy-one women, thirty-four of whom were in the climacteric stage. In twenty-six (75 per cent) of the latter group the treatment was successful. The treatment can be combined with an exploratory curettage. In hemorrhages caused by endometritis, the method was successful in 55 per cent of the cases. In cases of myoma, no favorable permanent results were obtained. However, the method can be used even in these cases for the purpose of arresting the hemorrhage. Thus time is gained in which the patient can be strengthened before operation. The method involves no danger and is comparatively simple.

**Period of Physiologic Sterility in Women.**—Araya examined the validity of the theory of physiologic sterility advanced by Ogino and Knaus. He maintains that ovulation may take place at any time during the menstrual cycle and that a corpus luteum may likewise be present at any time. The existence of a pregravid stage on the part of the uterine mucosa is unnecessary for the nidation of the ovum. Observations on women who had only a single intercourse in one menstrual cycle proved that conception may take place at any time, even during menstruation. Results of artificial insemination prove likewise that it may be successful at any time in the course of the cycle. The survival of the spermatozoa within the female sex organs is sufficient to make possible the fertilization of a subsequently formed ovum. The life expectancy of the ovum is not definitely known, but it is assumed that it is at least two or three days. On the basis of these factors the author rejects the theory of a period of physiologic sterility in women.

## Wiener medizinische Wochenschrift, Vienna

**86:** 1157-1184 (Oct. 17) 1936

Headaches and Their Treatment. A. Pilcz.—p. 1157.
Progress of Therapy of Female Gonorrhea. S. Wolfram.—p. 1160.
*Posterior Lobe of Hypophysis and Thyroid. O. Peczenik and L. Popper.—p. 1165.
When and How Should Pneumothorax Treatment Be Terminated? W. Neumann.—p. 1167.

**Posterior Lobe of Hypophysis and Thyroid.**—Peczenik and Popper direct attention to the fact that Pal observed two decades ago that solution of posterior pituitary exerts a favorable influence on hyperthyroidism. In order to gain a better insight into the functional antagonism between the posterior pituitary and the thyroid, the authors resorted to animal experiments. The tests were made on adult male guinea-pigs. In order to determine whether solution of posterior pituitary has an inhibiting effect on the action of thyroxine, one group of animals was given intraperitoneal injections for ten days. Beginning with the sixth day, these animals as well as the controls (receiving no solution of posterior pituitary) were given subcutaneous injections of thyroxine. In the animals that had been treated with solution of posterior pituitary the action of the thyroxine was noticeably inhibited. The authors made other animal tests to determine the action of solution of posterior pituitary on the organism's own thyroid principle as well as on the secreting thyroid itself. They reach the conclusion that the inhibiting effect of solution of posterior pituitary has its point of attack chiefly on the peripheral organs. They admit that the therapeutic use of the solution in hyperthyroidism has the disadvantage that only a part of the cases respond to it and they think that this is the reason why this treatment has not been more widely employed. Nevertheless, one of the authors (Popper) resorted to solution of posterior pituitary in thirty-one cases and achieved improvement in twenty-two.

## Sovetskiy Vrachebnyy Zhurnal, Leningrad

Oct. 15, 1936 (No. 19) pp. 1441-1520. Partial Index

*Clinical and Laboratory Observations on Persons Infected with Pfeiffer's Bacillus. A. A. Smorodintsev, A. I. Drobyshevskaya, S. I. Leytman, S. M. Ostrovskaya and O. I. Shishkina.—p. 1445.
*Etiology of Grip Epidemic of 1936. A. A. Smorodintsev, A. I. Drobyshevskaya, S. M. Ostrovskaya and O. I. Shishkina.—p. 1455.
Pneumonias of Grip Epidemic of 1936. M. D. Tushinskiy.—p. 1469.
Procaine Hydrochloride Block in Internal Diseases. L. I. Vilenskiy and A. O. Tseytel.—p. 1479.
Clinical Observations on Paratyphoid B. M. F. Wassermann and E. N. Rozova.—p. 1492.

**Infections with Pfeiffer's Bacillus.**—To determine the specificity of Bacillus influenzae pfeifferi, Smorodintsev and his co-workers made observations on 110 volunteers in whom an attempt was made to induce a direct infection. Attempts to graft the infection by placing pure cultures of the bacillus on cotton tampons in the nasal passages and rubbing the cultures at the same time into the tonsils failed. The authors then developed a method of introducing the bacilli in contact with the deeper respiratory passages by means of inhaling through an anesthetic mask into which a spray of live cultures was introduced. Most of the volunteers were hospitalized. All the 110 persons subjected to the experiment developed in from four to six hours a fairly characteristic clinical picture of a toxic infectious state. Cultures of washings from the pharynx gave a high concentration of colonies of the bacillus of Pfeiffer in the course of the following five to ten days. The incidence of the hemolytic streptococcus and the pneumococcus was not affected and remained at the same level as before the experiment. There was an increase in the blood of the specific agglutinins and the complement bodies. The clinical manifestations displayed a certain similarity and indicated a specific toxic-infectious state characterized by evanescence and rapid termination (from one to two days). Neither the subjective nor the local manifestations could be said to be characteristic of epidemic grip. All cases exhibited at the earliest moment of infection a definite leukocytosis. There was not a single case of contagion among the medical personnel or in the especially arranged experimental conditions favoring contact infection. The authors conclude that the artificially provoked infection in healthy persons by means of virulent live cultures of the bacillus of Pfeiffer is not identical with true epidemic grip.

**Etiology of Grip Epidemic of 1936.**—Smorodintsev and his collaborators separated a filtrable virus from the respiratory passages of cases of grip in the 1936 epidemic. This virus was found to be pathogenic for mice and to be identical with the virus of Smith, Andrewes and Laidlaw. The Leningrad strain on introduction into the respiratory passages of mice produced typical catarrhal manifestations and fever within twenty-four hours, and resistance to reinfection. Dilutions of the virus of 1 : 10,000 were fatal to mice when introduced intranasally. The virus could be neutralized by the immune serum specific for the English strain. It failed to cause infection in mice actively immunized against the English virus. The blood of convalescents from grippal infection was found regularly to contain a marked increase of virucidal elements. The serum of convalescents was capable of neutralizing 1,000 fatal doses of the virus in dilutions of 1 : 1,000, whereas the serum of

patients at the height of the disease could not do the same in dilutions greater than 1:10. These data support the concept of the filtrable virus as the primary cause of epidemic grip. The bacterial content of the respiratory passages in postgrippal complications showed a great increase during the first five or six days in pneumococci of the fourth type, the bacillus of Pfeiffer and Micrococcus catarrhalis. The study of sputum of sixty patients with grippal pneumonia showed identical qualitative characteristics with the microflora of the respiratory passages in uncomplicated cases of grip. It appears that by provoking the inflammatory processes in the respiratory passages the causative agent of grip, the filtrable virus, activates and mobilizes such microbes as the pneumococcus and the bacillus of Pfeiffer. This enormous accumulation of microbes is capable of giving rise in persons weakened by the action of virus to secondary infections, such as grippal pneumonia.

## Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

**80:** 4773-4872 (Oct. 24) 1936

*Is There a Relation Between Pernicious Anemia and Gastric Cancer? D. van der Sande.—p. 4774.
*Ileitis Terminalis. C. Knapper.—p. 4782.
Treatment of Chorea Minor with Injections of Evipan Sodium. J. J. Jüngerhans, J. J. C. P. A. Roovers.—p. 4793.
Bronchospirometry. A. Van Meeteren.—p. 4795.
Further Investigations on Experimental Catatonia. H. De Jong.—p. 4803.
Atrophy of Skeleton of Right Hand with Aspects of Sudeck's Atrophy: Two Cases. M. H. P. P. Van Haeff.—p. 4811.

**Pernicious Anemia and Gastric Cancer.**—Following a description of the clinical history of a woman, aged 73, who first suffered from pernicious anemia which was successfully treated by means of liver therapy and who, two years later, presented the symptoms of gastric cancer, van der Sande discusses the possibility of a relationship between pernicious anemia and gastric cancer. He points out that the literature reports other instances of the combination of pernicious anemia and gastric carcinoma in the same patient, but he stresses that criticism is necessary in the evaluation of these cases. He cites some of the factors that must be considered in establishing a relationship between pernicious anemia and gastric cancer. He reaches the conclusion that as yet the number of cases of concurrence of pernicious anemia and gastric cancer is still too small to permit a definite statement regarding the relationship between the two diseases. Nevertheless, he opines that it is advisable to think of the possibility of a developing gastric cancer in patients with pernicious anemia.

**Ileitis Terminalis.**—Knapper shows that this form of ileitis is an inflammatory process of the terminal portion of the ileum, which sometimes spreads to the cecum. The clinical symptoms of this disorder become understandable, if attention is paid to the fact that the disease involves three processes; namely, ulceration of the intestinal mucosa, thickening and shrinking of the intestinal wall and a tendency to form internal and external fistulas. The pathologic diagnosis is based chiefly on the exclusion of specific infective processes in the ileum. For the clinical diagnosis, the roentgenologic examination of the intestinal tract is of primary importance. The characteristics of the roentgenogram are nozzle-shaped elongation of the cecum, irregular filling of the terminal loop of the ileum and dilatation of the afferent loop. As the best method of treatment, the author recommends ileocecal resection, which can be done during the acute as well as the chronic stage. To avoid the risk of relapse, the resection should be done in the healthy tissue. In some cases, resection in two stages is advisable. The author describes two cases of his own observation.

## Hygiea, Stockholm

**98:** 577-608 (Sept. 15) 1936

*So-Called Choledochus Cyst. F. Koch.—p. 577.

**So-Called Choledochus Cyst.**—Koch says that primary idiopathic dilatation of the common bile duct is a cystic distention without demonstrable obstacle, secondary dilatation being due to an obstacle to the outflow of the bile. In his first patient, a girl aged 12, with a diagnosis of organic heart defect and acute gastro-enteritis, necropsy revealed, in addition to a three-chambered heart, the choledochus immediately above the entrance into the duodenum as a thin-walled, cystlike dilatation the size of a hen's egg. The wall was made up of sclerotic connective tissue with occasional smooth musculature and was without a sign of mucous membrane. The form of the dilatation, normal condition of the other bile ducts and absence of any anatomic hindrance in Vater's papilla testified to an idiopathic dilatation of the choledochus. There was also complete lack of the spleen, a malformation of which only about thirty instances have been reported (Ask-Upmark). His second patient was a man aged 55. On necropsy an unusually large secondary dilatation of the entire common bile duct was found, with a maximum width of 8 cm., due to a constricting tumor in the duodenal papilla; the cystic and hepatic ducts also were dilated. The wall of the choledochus consisted of sclerotic connective tissue; mucous membrane and glands were missing. Idiopathic dilatation of the choledochus, the author says, occurs about seven times as often in girls as in boys; the oldest age reported is 56, and the average age on operation 14. The choledochus cyst varies from the size of a hen's egg to that of a man's head. The clinical picture is characterized by pain, jaundice and tumor. Pain, often the first symptom, and reported in 45 per cent of eighty-four cases from the literature, appears in attacks of varying intensity and duration, usually at longer intervals, and resembles gallstone colic. Jaundice, seen in 62 per cent of the cases, is usually intermittent, may be progressive, and is accompanied by the picture of a biliary stasis. The tumor, palpated in about 60 per cent of the cases, is an elastic, sometimes fluctuating, rounded tender resistance in the right side of the epigastrium. Diagnosis before operation or necropsy has been made in but few cases. The patient's history may allow the disturbance to be traced back to childhood. The importance of the surgeon's familiarity with the anomaly is stressed. Treatment is directed to restoring the flow of the bile and causing collapse of the cyst. The operative method advised is anastomosis between the choledochus or the gallbladder and the duodenum or jejunum, done in one or two sessions. The one-session procedure is almost always a choledochoduodenostomy. According to reviews cited, the mortality in primary anastomosis is 30 per cent, in operation in two-sessions 35 per cent.

## Svenska Läkaresällskapets Handlingar, Stockholm

**62:** 155-233 (No. 3) 1936

*Tuberculosis of Lymph Nodes and of Serous Membranes. E. Karlmark and K. J. Grenabo.—p. 155.
Esthiomene and Inflammatory Stricture of Rectum as Accompanying Disturbances in Inguinal Lymphogranulomatosis. W. Frei.—p. 227.

**Tuberculosis of Lymph Nodes and of Serous Membranes.**—Karlmark and Grenabo call attention to two forms of tuberculosis in older patients which they consider interesting both theoretically and practically, and they report full tabulation of the 124 cases of not healed tuberculosis of lymph nodes and of serous membranes, or tuberculosis of serous membranes and of lymph nodes in the same case, found among the 1,870 cases of tuberculosis out of a necropsy material of 5,168 cases from 1925 to 1932. The material seems to them particularly adapted for study of the question of the flare-up of tuberculosis, as of the caseous tuberculosis of the lymph nodes and the caseous tuberculosis of the lungs revealed on postmortem, the former probably represents an older condition.

## Ugeskrift for Læger, Copenhagen

**98:** 885-914 (Sept. 17) 1936

*Percutaneous Tuberculin-Plaster Test. Monrad.—p. 885.
Precautionary Measures in Cases of Dysentery and Salmonella Infections. K. Bojlén.—p. 887.
Roentgen Measurements of Pelvis. K. Overgaard.—p. 890.

**Percutaneous Tuberculin-Plaster Test.**—Monrad reports five cases of unspecific positive Mantoux reactions in children observed during the last six months and states that in the Queen Louise Children's Hospital the following is not the regular procedure. If in a given case the intracutaneous test, after two negative plaster tests, shows a positive reaction, a third plaster test is made. If it is positive, infection with tuberculosis is regarded as established; if it is negative the intracutaneous test is repeated, and the outcome of this compared with the results of the remaining clinical examination is accepted as determining whether or not tuberculous infection is present.